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Transactions of the Massachusetts Horticultural Society

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TRANSACTIONS

OF THE

MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1905

PART I

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND FIVE

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society

FOR THE YEAR 1905

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THE INAUGURAL MEETING, JANUARY 7, 1905.

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1905, PART I.

INAUGURAL MEETING.

The Inaugural Meeting of the Society for the year 1905 was held at Horticultural Hall, Boston, on Saturday, January 7, at twelve o'clock, noon.

The retiring President, Henry P. Walcott, called the meeting to order and spoke briefly of the present condition of the Society and of the work accomplished during the past year.

Some improvements in the building had been made at small expense and other changes were contemplated; and the library had been given proper protection.

They had lived one year under the new Constitution, safely, happily, and profitably, and he knew no reason why they should not go on to a prosperous future.

He stated that the President-elect, Arthur F. Estabrook, had been obliged to seek a milder climate at this season of the year, and he introduced as the presiding officer, Vice-President Walter Hunnewell.

Annual reports for the year 1904 were then presented as follows:

Report of the Board of Trustees.

Report of the Committee on Prizes and Exhibitions, John K. M. L. Farquhar, Chairman.

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Report of the Committee on Plants and Flowers, Arthur H. Fewkes, Chairman.

Report of the Committee on Fruits, E. W. Wood, Chairman.

Report of the Committee on Vegetables, Michael Sullivan, Chairman.

Report of the Committee on Gardens, Charles W. Parker, Chairman.

Report of the Committee on School Gardens and Native Plants, Henry S. Adams, Chairman.

Report of the Delegate to the State Board of Agriculture, William H. Spooner.

Report of the Inspector to the State Board of Agriculture, Francis H. Appleton.

Report of the Committee on Lectures and Publication, Aaron Low, Chairman.

Report of the Secretary and Librarian.

Report of the Treasurer.

Report of the Finance Committee, Walter Hunnewell, Chairman.

It was voted that the several reports be accepted and referred to the Committee on Publication.

On motion of William H. Spooner it was voted that the thanks of the Society be presented to E. W. Wood for his long and honorable service as chairman of the Committee on Fruits.

Adjourned.

WILLIAM P. RICH,
Secretary.

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HORTICULTURAL PAPERS AND DISCUSSIONS.

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SOME RECENTLY INTRODUCED WEEDS.

BY MERRITT L. FERNALD, CAMBRIDGE, MASS.

Delivered before the Society, January 14, 1905.

The clearing of the forest lands and the letting in of the direct sunlight is the inevitable forerunner of the farm and the village, but it is as inevitably the death warrant of hundreds of native plants. As is now well understood, a majority of our woodland species have a root structure which allows them to grow only in the moist, spongy humus of the forest or the swamp, conditions, as many of us know from practical experience, almost impossible of artificial attainment. Try as we will most if not all of us have failed to imitate with sufficient skill permanently to satisfy the plant the exact conditions which please the stemless lady's slipper (*Cypripedium acaule*), the trailing arbutus (*Epigaea*), the various species of *Pyrola*, the yellow wild foxgloves (*Gerardia*), the painted cups (*Castilleja*), or the fringed gentian; though in their undisturbed haunts these plants bloom regularly and reproduce freely.

In their own wild homes, likewise, these and scores of other species are almost as sensitive to change as when forced by man into an unappreciated state of culture. The simple cutting of the forest is to most of these plants disastrous, though such of them as are very hardy will often linger until fire has swept the cleared land and burned out the tinder-like humus. After the fire comes a complete change of vegetation, and, during the interval before the stumps are finally removed and the land turned by the plow, the clearing too often becomes a tangle of fire cherry (*Prunus pennsylvanica*), aspens (*Populus tremuloides* and *grandidentata*), and other quick-growing trees and shrubs with a liberal mixture of blackberry and raspberry bushes, fireweeds (*Epilobium* and *Erechtites*), rattlesnake-weeds (*Prenanthes*), and other coarse plants which love the open and the direct sunshine. When the final planting of the farm crop

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comes, however, these sturdy plants of the burned land are quickly disposed of and rarely if ever do they make themselves troublesome in the cultivated field.

Were this routine from the primeval forest, through the clearing stage to the cultivated crop, still as simple as when Champlain observed the cultivation by the Indians of corn and beans and squashes, we should have few weeds and I should have no occasion to talk to you today. But the progress of civilization is accompanied by many drawbacks, among them the introduced weeds.

The original white settlers of New England brought with them many garden seeds, and not unnaturally they introduced with the good seeds many that were bad. So we find, according to John Josselyn in 1672, that no less than 40 species of European weeds had "sprung up since the English planted and kept cattle in New England." The naturalization of these European plants led Josselyn with unconcealed seventeenth-century credulity to ask: "What became of the influence of those planets that produce and govern these plants before this time?" Without awaiting any unusual planetary changes, however, the introduced plants mentioned by Josselyn made themselves entirely at home, and to this day these first emigrants from the European roadsides — shepherd's purse, dandelion, sow-thistle, stinging nettle, mallow, plantain, chickweed, clotbur (burdock), mullein, sorrel, smartweed, St. John's-wort, yarrow, toad-flax (butter-and-eggs), purslane, etc. — are among the most persistent followers of American civilization.

The next reliable records of weeds introduced into New England are those of Manasseh Cutler, who, in 1783, reported 66 species, among them the buttercup, "common in moist pastures and fields," white-weed or daisy, "very injurious to grass lands," and chicory, "fields in Cambridge." Since then the buttercup and the daisy have followed the white man across the Rocky Mountains and are already common on the Pacific slope, and chicory has spread over the Eastern States, with forerunners appearing throughout the West. In Bigelow's Florula Bostoniensis (1814), 83 introduced species are enumerated, and in the edition of 1840, 140 species. Gradually this list has increased until we are now

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forced to number among the wild plants of New England more than 600 species which have been introduced through human agency since the first cutting of the forests.

A review of the history and spread of this vagrant class of plants presents many aspects which are well worth consideration. John Josselyn in 1672 stated that several species of European weeds had "sprung up since the English planted and kept cattle in New England," thus implying that these plants had come unbidden or at least were not purposely brought to this country. According to a time-honored tradition, based perhaps on fact, the first weed to spring up in the track of the pioneer is plantain, and on this account it has been called by some primitive races "White-man's Foot," a name of more than fanciful application; for without question the plantain and many other roadside species are spread directly by the foot of man. For some years strange and outlandish weeds have been appearing along the river below Waterbury, Connecticut. These plants, upon careful study, prove to be vagrant species from geographically remote portions of the world, and their presence along the Naugatuck River has been a mystery. Eventually, however, the whole matter was cleared when the source of these plants was traced to a factory which utilized old rubber shoes. These shoes were collected from every available source, and, before being melted for their rubber, were stripped of the cloth linings which were thrown upon a rubbish heap. These linings naturally contained seeds of innumerable plants from the roadsides of every land, and the rains and spring freshets of the Naugatuck valley gave them every opportunity to scatter and to start life anew in Connecticut soil. In this or similar ways many of the plants mentioned by John Josselyn, Manasseh Cutler, and Jacob Bigelow undoubtedly reached our shores; and these emigrants are being reinforced by almost every person who comes to us from foreign lands.

Another source of weeds which in Josselyn's time was probably as great a cause of trouble as now was impure seed. Even with the utmost exercise of caution it is apparently difficult to put up a bag of grass or of clover seed without including in it the seed of some other and undesirable plant. Newly seeded

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fields have long been known to the enthusiastic botanical collector as one of the most prolific sources of strange weeds. Such is certainly the case today, and there is little reason to suppose that the field seed of colonial days was much purer. Every year brings to New England many dangerous pests through this source alone. Some of them die out after one or two seasons and cause little trouble, but others, like the king-devil weed (*Hieracium praealtum*) and its less notorious but none the less mischievous relatives have within a decade become sources of peril in many parts of New England. The king devil itself has had its full share of notoriety, particularly in the Kennebec valley, where its ravages have been so great as to stimulate a local movement (I believe unsuccessful) to secure state protection for the farmers; but some other members of the genus *Hieracium* or hawkweeds have had their vices less exposed to censure. In 1900 there appeared in a hayfield at Cutler (near Machias), Maine, a small patch — a few feet across — of the closely related *Hieracium floribundum*. The plant was looked upon merely as a curiosity, but in July, 1902, when I first saw the plant, it had spread by means of its strong and very numerous runners and in two years had utterly ruined more than an acre of grass land. The plants were then in full bloom, and the owner of the farm, lamenting the destruction of his hay crop, assured me that he would allow none of the hawkweed to mature seed, and that he would immediately have the field plowed and salted. In late August, however, I was again in Cutler and was dismayed to see that the entire acre had not only seeded freely, but that all the light feathery fruits were then scattered. Since 1902, this hawkweed has been found at several other places in New England and New Brunswick — even as far south as central Connecticut. Whether the seed which originated these new colonies started from the ruined and neglected farm at Cutler is of course impossible to say, but it is now a hard fact that *Hieracium floribundum* has a foothold in New England which will make it as dangerous an enemy to the hayfield as the king devil or the orange hawkweed (*Hieracium aurantiacum*). Other hawkweeds, *Hieracium pratense* and *H. Pilosella*, closely related to the three more troublesome species, have also made a start in New England

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fields, and unfortunately there are still others of the genus in Europe which may be expected to arrive at any time.

The common and most natural practice of throwing out garden refuse has occasionally been responsible for the establishment in a community of pernicious weeds. The orange hawkweed (*Hieracium aurantiacum*) was popular in some old gardens of central Maine during the 70's under the name tassel-flower or Venus's paint-brush. It propagates very freely by runners as well as by feathery fruits, and about 1880 it began to spread slightly from gardens to adjoining fields. Once in the field it made the most of its unrestrained liberty and soon spread so generally over large areas of Maine and other New England states as to undergo a change of its colloquial name from Venus's paint-brush to the Devil's paint-brush. The live-forever (*Sedum Telephium*) perhaps better known as Jacob's ladder, was long cultivated in old-fashioned borders. It is extremely tenacious to life, and every portion of it thrown out from the garden started a new colony, and now the damp fields in many parts of New England and Canada are given over to this almost indestructible weed.

Two other sources of weeds are sufficiently important to receive our special consideration — ballast grounds and woolen mills. It has long been the custom for ships sailing from one port to another with a light cargo to make up the deficiency by loading the hold with rocks, gravel, or earth as ballast. When a port is reached from which a full cargo is to be taken this ballast is discharged and the boat is ready for its new load. The soil dumped upon ballast grounds of our principal ports contains the seeds of many species which abounded at the home port from which the ballast was obtained, and after this soil is scattered upon the flats or used as filling for a dock many strange plants make their appearance. The possible number of species to be found by the diligent searcher on the ballast lands of Boston or New York is of course very great; but most of the plants of such places, shut in by city walls and with little opportunity to spread into the open country, soon perish or are covered by a new load of ballast perhaps from a second port. To such ballast lands, however, there often come plants which, once given an opportunity, will become troublesome weeds. A coarse Euro-

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pean plant, *Hypochaeris radicata*, in many ways resembling the fall dandelion (*Leontodon*), has appeared for several years on ballast lands of the Atlantic coast, where it has usually died or been killed out after a year or two in each place. In 1899, however, it appeared in lawns on Penzance and at Wareham, and now it is an abundant weed in parts of New Bedford and Dartmouth. This is an unfortunate fact, for on our Pacific coast *Hypochaeris radicata* has become a most troublesome lawn weed, and there is no reason to suppose it will be less aggressive with us.

The waste from woolen mills is always the source of foreign weeds. The habit at many of our mills has been to establish a waste heap upon which are piled all the tangles which are cut from the wool. This waste is allowed to decay and after it has accumulated it is mixed with other matter and used as a manure. Now, the worst tangles in the wool are generally caused by burs and other rough seeds which have clung to the fleece of the browsing sheep. Consequently, wool waste is in many ways an undesirable fertilizer, for when spread over a field an opportunity is afforded for the seeds which it contains to germinate, and soon there appears a strange and unwelcome crop. Such a field in Tewksbury, in 1900, produced a crop almost exclusively of two species of storksbill (*Erodium*), plants which are always fond of traveling in wool. As with ballast plants, a long list could be made of species which appear about wool waste, but the storksbills will serve as very typical illustrations of this group.

Since the clearing away of the forests in much of eastern America an opportunity to spread has been afforded for certain plants which originally grew only in the prairie belt or on the bottom lands of the Mississippi and other large water courses. These plants, fond of the open country and direct sunlight, are now showing a strong tendency to work eastward into areas which were formerly wooded. The yellow daisy or cone-flower (*Rudbeckia hirta*) was one of the first of this group to take up the eastward march across New York and New England, but now it has covered this area and extended its pioneer colonies quite to the Gulf of St. Lawrence. The purple cone-flower (*Echinacea pallida*) is beginning to appear in our fields, and

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other species from the prairies or beyond — such as the buffalo bur (*Solanum rostratum*) and its near relative the horse nettle (*Solanum carolinense*) are creeping more and more into New England; but compared with the Old World species these American plants are usually unimportant weeds.

Many plants at the time of their first introduction into America seem harmless and unlikely to cause trouble; but after a period of acclimatization on the dumping grounds or in the undisturbed fence corners they suddenly reach a period of active reproduction, and in their offspring the aggressive qualities which class them as weeds are suddenly developed. Thus in 1863 a few plants of rape (*Brassica campestris*) were known to occur at Buffalo, but as late as 1882 the species though persisting was barely established. In 1887, however, it began to be troublesome in fields of central and western New York, and in 1888 it was common on dumps and rubbish heaps in eastern Massachusetts. Then it suddenly appeared as a weed of grain fields and other cultivated grounds throughout New England and eastern Canada where it is still a common nuisance. The blueweed or viper's bugloss (*Echium vulgare*) was known as an occasional waif on dumps or by neglected roadsides for nearly fifty years before it began, within the last quarter-century, to take a strong foothold in dry fields and cultivated land through eastern New York and New England.

On the other hand, some plants, which, in the past, have borne hard reputations, seem to have run their course and to have settled to a less aggressive mode of life. The henbane (*Hyoscyamus niger*), a disagreeably sticky and ill-smelling weed, which early Massachusetts botanists considered common, has now practically vanished from the New England flora, though it is abundant in eastern Quebec. Indeed, there seems good reason to assert that even the prickly lettuce (*Lactuca scariola*, var. *integrata*), which for years has been the *bête noir* of the western farmers, is now on the wane. But even though we may hope that all the weeds which are brought to us from foreign lands will eventually become as innocuous as the once common henbane, the prospect of waiting for 600 species and their successors to run their full course is not a pleasing one; and some energetic methods must be employed to check the progress of new weeds.

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The question is often asked, why it is that so many of our noxious weeds are of European origin while our own native species are comparatively innocent of offense. This question is of very great interest. Originally the forested areas of northern and central Europe were not unlike our own wooded country, and the herbaceous plants of the leaf mold were similar to and often identical with our own woodland species. For centuries, however, the cutting and recutting of the forests and the tremendous growth of towns and of closely cultivated land has left most of these species practical outcasts, hiding here and there in cold mountain regions and swamps. This virtual deforesting of large tracts of Europe and the consequent destruction of the fastidious woodland species has very naturally increased the opportunity for development of genera and species which thrive best in the open; and so we now find spread widely over civilized Europe the numberless species of such characteristic genera as the hawkweeds (*Hieracium*), the thistles (*Cirsium*, *Carduus*, etc.), the poppies (*Papaver*), mustards (*Brassica*, *Sisymbrium*, etc.), vetches (*Vicia*, etc.), bedstraws (*Galium*), and star thistles (*Centaurea*). Life for hundreds of generations along the roads and fence rows, on the outskirts of civilization, has developed in these plants a vigor and hardiness and an indifference to surroundings strikingly in contrast with the sensitive constitutions of the woodland species they have now so thoroughly supplanted. These hardy races, then, developed as the result of long competition in fence corners and hedgerows of Europe are able to cope with conditions which are practically impossible to the less sturdy types developed along our New England rivers. This point is well illustrated by the common plantain of our roadsides. In all its characteristics this plant is exactly the *Plantago major* of Europe, and throughout America it is this typical thick-leaved European plant which abounds by roadsides. A thinner-leaved variety of *Plantago major* is common in the alluvium and along the river beaches of northern New England and Canada, but, so far as our observations show, this thin-leaved native plant never deserts the river bank, while its less fastidious European representative is quite at home in the precarious surroundings of busy roadsides and beaten paths. Similarly the yarrow, self-heal,

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tansy, tufted vetch, and many other European plants have in America indigenous representatives; but these American plants, adapted through long centuries to their habitats along woodland rivers, never show an inclination to take to the fields or the roadsides, although plants imported from Europe and to all appearances identical delight in the cultivated fields and the haunts of man. In other words, as already stated, while the American plant, unaccustomed to the ways of civilization until the recent and still unfinished clearing of the forest, is unable readily to cope with changed conditions, the European plant, through a long life of competition with man, has developed a hardy stock which is undaunted by the hardships of the roadside and the inhospitable farm.

This point is further emphasized by a comparison of our New England flora with that of Great Britain. Of the species growing in the British Isles only above an altitude of 3,000 feet, i. e., in the mountain country where the primitive vegetation is but little disturbed, 64 per cent are also native in the cold forests or on the mountains of northern New England. But of the species which occur everywhere at low altitudes and in the thickly-settled and closely-farmed districts of England only 23 per cent are native to New England as well, while more than 50 per cent have become established in New England as weeds. Opposed to this we have the striking fact that in temperate Europe barely 1 per cent of the wild plants have been introduced from the United States.

Besides the hardy character of the plants which come to us as weeds from Europe there is another factor which must be borne in mind. Any organism transplanted from its original surroundings to a new but favorable region is inclined to increase in vigor and powers of reproduction. The case of the rabbits in Australia is now classic. Our own experiences with the English sparrow, the brown-tail and the gypsy moth are examples nearer home. The same principle holds with weeds. In Europe the marguerite or daisy is rarely seen except in the gardens, but, once started in America, it has overrun the Eastern States and is rapidly taking as strong a hold in the West. A famous case—one of the few in which we have squared accounts with our European cousins—

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is that of *Elodea canadensis*, known in Europe as "water-pest." At home, in America, this is an insignificant water-plant ordinarily overlooked except as it occurs in reservoirs. But a few plants, spreading from an aquarium to the River Cam in England, soon clogged the stream, and from this and perhaps other similar sources it has spread over England and much of continental Europe, everywhere developing so vigorously as scarcely to resemble the slender unassuming American plant from which it sprung. In return, however, the European water-cress introduced into New England brooks behaves with as little reserve, and often the brooks of which it has taken possession become so clogged by it as to cause serious damage. Another aquatic, the water chestnut (*Trapa natans*), introduced some years ago as a curiosity from Asia, was placed in the Concord River, where it has become such a nuisance that it is necessary to weed it out of the Sudbury River above its junction with the Assabet.

Besides the methods of transportation from place to place which we have already discussed, there is another which is at present particularly instrumental in the rapid spread of weeds. I refer to the railroad. Besides carrying freight and passengers, the ordinary train transports uninvited the fine seeds of many plants from one part of the country to another. No better botanizing ground can be asked by the person interested in novel weeds than the freight yards of a trunk railroad, especially if the employees of the road have been negligent or thoughtless about keeping down weeds. As in case of the plants of ballast lands and of recently seeded ground many of the newly introduced plants quickly perish; but others, with the slightest encouragement, become permanent elements of the flora and take every advantage of the railroad as a means of travel. The progress of many bad weeds is readily traced to the railroads, and at the present time roads entering New England from different directions are bringing to us as many different vagrants. In the late 70's a coarse yellow-flowered plant, *Senecio Jacobaea*, familiarly known by the suggestive name "Stinking Willie," appeared as a waif on ballast at some points along Northumberland Strait in eastern New Brunswick and adjacent Nova Scotia. By 1884 it had begun to spread along the local railroads; and now it has

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followed the Intercolonial and the Canadian Pacific across New Brunswick and Nova Scotia, and has even reached the Boston and Maine system near Portland. This plant is charged in the Maritime Provinces not only with being an enemy to the farmer, but with causing asthma and hay fever, so that, in spite of its showy display of yellow, it is an unwelcome traveler along the railroads. Other railroads entering New England from Quebec, New York, and other large centers are bringing with them their full share of vegetable vagabonds, for it is an interesting fact that the different large ports—Boston, New York, Philadelphia, Halifax, Quebec, etc.—have become centers for the establishment of very different Old World plants.

It is true that many of the foreign plants which are rapidly establishing themselves in New England are of certain economic value, and much has been done to raise the self-respect of these plants by the recent publication by the United States Department of Agriculture of a bulletin (Farmers' Bulletin No. 188) on the medicinal uses of some of them. But at best they are not a satisfactory crop, and as weeds they occupy space which should be put to better service.

Briefly summarized, the points I have attempted to make clear are, that the cutting away of forests produces conditions which are fatal to many woodland species, but which give an increased opportunity for development to plants which thrive best in the open. In the occupancy of this newly opened land the coarse and vigorous plants of Europe bred through long contact with civilization have a tremendous advantage over the less aggressive American species or varieties. These European weeds reach us in various manners, the seed often clinging to the clothes or the shoes of the traveler, or finding their way into field or garden crops. Others have originated from garden plants carelessly allowed to spread to adjacent fields, while many come to us in ship ballast or in the wool sent for manufacture at our mills.

The problem presented by these plants is a serious one. There is no need for me to emphasize its importance to the practical agriculturist, but I may be permitted to call attention particularly to a point which appeals immediately to the botanist and the lover of nature. That is the danger which this rapid encroach-

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ment of aggressive and for the most part unattractive plants forces upon our own more sensitive and more attractive natives. The latter, as already sufficiently emphasized, are often fastidious as to the soil and conditions in which they grow; the former ready to thrive in almost any surroundings. On some of our northern rivers which were early followed by the Jesuit explorers, aggressive European weeds — the bladder campion and the mugwort, for instance — which were probably introduced in the blankets of the *voyageurs*, have now covered large areas and choked out the native vegetation. In central Maine, the present stronghold of the orange hawkweed or devil's paint-brush, that showy and energetic plant has already entered mossy cedar swamps and is beginning to crowd from their native knolls the mitre-wort, *Moneses*, and other delicate species.

The remedy for this weed evil lies primarily with such an organization as the Massachusetts Horticultural Society. Like the problem of the gypsy moth and the brown-tail moth its solution must depend upon coöperation. Isolated endeavors to keep out aggressive and uninvited occupants of our land are only of minor value; but if the problem can be taken up and its solution pushed by a wide-reaching organization such as yours much may yet be accomplished in checking what has become a menace to every landowner.

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FOREST PLANTING FOR PROFIT IN MASSACHUSETTS.

BY THEODORE F. BORST, BOSTON.

Abstract of an illustrated lecture delivered before the Society, January 21, 1905.

After briefly referring to the importance of forests and how the indiscriminate cutting of the past has made it impossible for nature to much longer supply our needs, Mr. Borst took up the problem of showing where forests should be planted, how seedling trees are raised in a nursery, how a young forest is properly planted, and how a plantation should be tended for profitable returns. Good profits from forest culture were shown.

He said that it is a matter of common knowledge that prices of all forest products, especially wood of the better kinds, have been very rapidly rising, and as these advanced prices are occasioned by a scarcity of desirable timber there is no reason to believe that prices will ever be lower; in fact, everything points toward much higher prices in the future. Just two weeks ago the President of the United States, through an address before the American Forest Congress held at Washington, called the attention of the American people to the grave problems now confronting us by the rapid destruction of our forests. These forests were once thought inexhaustible, but at this congress, as never before, the leading interests depending upon forest products, namely: the lumbermen, the railroads, the mining interests, paper manufacturers, the box and cooperage manufacturers, the furniture manufacturers, and all woodworkers and users in general, did through able representatives of their various interests cry aloud their needs for wood materials. The area formerly covered with valuable timber has been much reduced, and the regrowth now taking place on other lands is upon culls left standing in the lumbering of the past. As nature no longer will

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supply our demands we must by artificial means stimulate and direct nature's forces in timber production.

There are many thousands of acres of land in Massachusetts that are absolutely waste. Much of this land is either unfit or unnecessary for agricultural purposes. Everywhere we note abandoned, brushy, wornout pastures, impoverished ploughland, deforested tops of ridges, steep, rocky hillsides, poor, loose, sandy soil, odd corners too expensive to plough and cultivate; yet many of these waste lands could at small expense be made to yield valuable timber crops. Mr. Borst showed a series of views of such deforested lands, burned over areas, etc., both from the surface and sectional cuts. These pictures made clear what poor lands white pine and other valuable trees can thrive on.' In discussing how many trees to plant, the size of plants to use, and the spacing between the trees, it was shown how very dependent the answer to these questions is on the nature of the land to be forested. It was shown that upon areas where more or less voluntary tree growth exists the supplementary planting necessary to fill the open places was very quickly and cheaply done, sometimes costing as low as four or five dollars per acre, using white pine trees for this purpose. Where the entire area must be planted the trees are set about five by five feet apart, requiring 1743 trees per acre, and may cost from seven to fifteen dollars per acre. The size of plants needed determines much the cost of the plantation. The size needed is very dependent upon soil conditions and the nature of growth covering the land. Brushy, blueberry, and sweet-fern lands require, for instance, the use of three-year old transplanted stock, while open, exhausted pasture lands can frequently be planted with two-year-old seedlings. Where conditions permit the use of chestnuts, acorns, or hickory nuts, the cost of planting per acre may be only two or three dollars. Some 18,000 acres of waste land have already been artificially forested in this State. A few of such areas have recently been lumbered at a net profit of over six per cent on the entire investment. If the planting which was done forty, fifty, and sixty years ago has proved profitable certainly the planting we would do today, which would come into the market forty, fifty, and sixty years hence must prove even more profitable; especi-

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ally when there is every indication that timber prices will double or perhaps treble themselves before that time.

It was illustrated at length how tree seeds are collected, how a sandy loam soil is selected for a nursery, and how the same is laid out, ploughed, harrowed, etc., for raising young trees. The seeds are soaked in warm water, poisoned for preventing mice from eating them, and then are carefully sown in drills in a nursery bed. Careful tending is necessary until the seeds germinate and are one year old. The seedlings remain in seed beds two years. They are then about six inches high and may be set directly into the field, or if larger, more stocky plants are needed, the seedlings are transplanted into nursery rows where they may remain one or two years longer. Views were shown illustrating how the seedlings are taken up, transported to the land to be planted, and how the men plant the same. Each two men of a crew work together, one man making the holes while the second man sets the trees. The details of how to properly and quickly set these trees were shown. Mr. Borst states that by his method each man employed in the planting will set more than 700 trees in nine hours. One crew of sixteen men and a foreman have set considerably more than 16,000 trees in nine hours. Under fair conditions, using two-year-old seedlings, two men working together will plant from three-quarters to one acre a day. Great care is necessary to obtain good stock, as frequently poor trees are delivered and the planting is correspondingly disappointing. One difficulty in the way of the general tree planting is that proper trees for forest planting are not readily obtainable at sufficiently low prices. For small plantings it may be advisable to transplant small seedlings, say from six to twelve inches high, from open pastures, but usually for plantations larger than five or six acres, the additional cost for labor, etc., necessary to collect and plant such stock is not compensated for. Also the success of such planting is often not encouraging. Mr. Borst carried his audience through the various stages in the development of a planted grove and showed that there is no essential difference in the planted forest and one sown by nature. The foresters' artificial method of planting is necessary when the seed trees have been destroyed or when the area has not been completely

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reclothed. It is often cheaper and more satisfactory to plant a forest than to depend on nature's sowing. White pine, chestnut, hickory, ash, oak, maple, and tamarack are among the best trees for planting in Massachusetts, but under some circumstances other trees might be preferable. Mr. Borst has during the past four years made plans for and supervised the planting of considerably over one million trees in Massachusetts, and many more trees are now being grown in nurseries for forest plantations. This year seedlings can be furnished cheaper than ever before. Data from actual experience was presented to show the cost of reforesting lands of different types, and several planting plans were discussed. If the planting is done on sufficiently large scale, say 25, 50, or 100 acres, the cost of planting including the young trees may be from five to fifteen dollars per acre. Ten dollars per acre has frequently been the cost for white pine planting. The proper age and the manner in which to prune and thin a forest was shown. If a stand is thinned too early or thinned too severely much injury can be done, as the trees will thereby become low crowned and produce knotty timber; and over-thinning also endangers a crop to windfall. It was shown that a mature white pine stand can be lumbered, and at the same time the ground be naturally reset with young pines. Tables were shown giving the volume of timber produced by white pine per acre in this State and also data from European planted white pine forests. Uncared for white pine forest in Massachusetts may produce in sixty years about 30,000 feet of timber, B. M., while under forestry treatment the European figures show that 50,000 feet can readily be produced on one acre during the same period of time. White pine plantations have been figured to yield a net annual return of $1.15 per acre paid at the expiration of forty years in addition to four per cent compound interest on the money invested. Under a different calculation, using all costs, it is estimated a return of about $2.25 per acre per year for forty years from the time of planting to the time of cutting is obtainable. This estimate is corroborated by actual experience. These returns are certainly very satisfactory, considering the fact that it is secured from land which is almost useless for any other purpose and which, without a timber crop, would be a source of

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constant expense in taxes. A timber crop not only gives a return on the money invested, but it makes productive the capital locked up in the land. These returns are figured on the yield obtainable without pruning, thinning, etc. If forestry treatment is given the returns should be higher. Again, these profits are figured on prices of stumpage prevailing today. The future profits will be higher in proportion to the advance in stumpage values.

Timber culture for profit is strongly commended to landowners, especially where lands are being held that are producing no returns whatever. One great advantage of tree culture is that the farmer and his regular labor can be readily taught to do the work and that very little attention save protection is needed after the crop is once started.

Mr. Borst's address was well calculated to demonstrate the entire practicability of forest culture for profit.

Discussion.

Benjamin P. Ware said there was no question that the subject of forestry was of the greatest importance. The lecturer had treated it on a large scale and he had noticed in some of the illustrations that the ground was covered with men, as many as thirty in some instances. Now that method was too costly for the average farmer.

He believed in following nature's method, that of scattering the pine seeds broadcast, which required no labor, no artificial appliances, no seedlings, and no great cost.

He knew of a bushy, rocky tract of land that had been well covered with a good growth of white pine by simply scattering seeds over it.

In Germany owners of land were obliged by law to cultivate a certain amount of forest trees and he urged the everyday farmer to go into forest planting.

Mr. Borst replied that broadcast seed sowing was wasteful and that the seeds were liable to dry up or to be eaten by birds and

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was altogether too uncertain in its results. The methods he recommended were the most profitable in the end.

Aaron Low said he recollected two pastures now completely overgrown with a thick growth of pine of nature's own sowing.

Kenneth Finlayson inquired as to the most suitable time to plant pines.

Mr. Borst said that the best time is in the spring just after the last frost is out of the ground. That is one of the advantages of forestry; it can be done before the spring work comes on. He said, in answer to questions, that the cost of seedlings two years old was six dollars a thousand and that they should be planted five by five or six by six feet apart. The cost per acre would depend a good deal upon conditions but would be about nine to fifteen dollars. A planting plan was the first thing to arrange. He further stated that the chestnut would give returns in twenty years, and that unimproved lands planted to forest growth would pay interest on the amount of taxes paid out by the owners.

A gentleman remarked that a discouraging feature of white pine growing was the damage done by the pine tree weevil which destroyed the leader in young trees, and asked if any remedy for this trouble was known.

Mr. Borst said that he knew of no preventive of this evil, but suggested spraying and the destruction of badly infested trees.

In reply to a question he said that the white pine will not do well near the sea.

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GENERAL DISCUSSION ON FRUIT.

OPENED BY E. W. WOOD, WEST NEWTON, MASS.

Saturday, January 28, 1905.

A general discussion of the subject of the cultivation of fruit was held at Horticultural Hall today. James H. Bowditch, of the Committee on Lectures, presided and introduced as the first speaker E. W. Wood of West Newton, a member of the fruit committee of the Society for twenty-five years. Mr. Wood spoke in part as follows:

The subject of today's discussion is one in which this Society has always taken an active interest and it has always been an important feature in its work. The original organization of the Society was due to the fruit growers of Boston and its suburbs.

The two leading fruits of New England are unquestionably the apple and the pear, and in no part of the world can the apple be grown more successfully than in New England. It is well known that the quality of this fruit improves in flavor and color as we go north, and Maine grown Baldwins bring a higher price than those grown in Massachusetts or further south. We are not keeping up with the Maine growers in the care and improvement of our orchards and in packing for the market.

Western grown apples do not have the keeping properties of those grown in this section of the country. There they have no apples that will keep all through the winter as do ours in New England where we may have them continually from August to June.

There seems to be a tendency towards the evening up of the apple crop by a more uniform production which if continued will eliminate the off year and enable our orchards to produce a crop every year.

In growing for the market it is important to know what to

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grow and what varieties to set out. Unquestionably the Baldwin is the best for our section.

The late Mr. Hayes, a former president of this Society, had prepared land for six hundred apple trees but was in some doubt as to the kinds to plant. To aid him in deciding this important matter he consulted with Mr. Curtis, at that time a prominent produce merchant of Faneuil Hall Market, Boston.

He stated the case to Mr. Curtis and desired his advice. Mr. Curtis asked him if he intended setting out his orchard for market purposes. "Certainly," replied Mr. Hayes. "And you are going to set out six hundred trees." "Yes." "Well, then," said Mr. Curtis, "if you are going to start an orchard of six hundred trees in this section of the country I would advise that you plant five hundred of them Baldwins." "And what shall I plant for the other hundred?" inquired Mr. Hayes. "You say that your orchard is intended wholly for commercial purposes," said Mr. Curtis. "Yes," replied Mr. Hayes. Mr. Curtis considered the question for a moment and then answered, "Set out the other hundred in Baldwins." This advice was the result of the experience of many years in the apple market and is not less true at the present day.

Next to the Baldwin can be recommended the Astrachan, Williams, Gravenstein (the queen of fall fruit), the Rhode Island Greening, and the Hubbardston. These varieties with the Baldwin will extend over the whole season and give us apples in perfection from August to June.

There are also many local varieties of apples which it is well to grow for a local market. Of these may be mentioned the Palmer Greening and the Sutton Beauty, favorites in Worcester County, and the McIntosh Red for new cultivation. This latter variety originated in Canada and is of the Fameuse type. It is of white flesh, good flavor, and keeps from November to March, and he would add it to an orchard in preference to any other variety recently introduced into this section of the country.

The influence of this Society and the value of its exhibitions are manifest in the changes brought about in the varieties of fruit grown. Here fruit growers meet to exhibit the products of their gardens and to discuss the good or bad points of the objects

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exhibited; with the result that the best only survives the test to which it is subjected. It is amusing sometimes to notice how one's specimens of fruit, which seem so large and fair in the owner's home, shrink upon being placed upon the exhibition tables.

Mr. Wood said that he knew of nothing today upon which a young man could enter with more hope of success with the least outlay of money than the cultivation of apples. In all the abandoned farms he had seen not one had a thrifty orchard upon it. Even if one should not live to see the results it will add to the value of the farm in the closing up of an estate, and there is nothing that will help the sale of a farm better than a prosperous orchard. How many orchards are seen everywhere showing neglect and want of care, and treated only as an incidental crop.

At a farmers' meeting a few years ago in a town in the central part of the state one of the auditors arose and said that the farmers in that section had been advised to grow apples; now they would like to be told how to sell them. It was a year when the crop was large and the returns discouragingly poor.

Dr. Fisher, who was at the meeting, was asked to reply. He said that he had grown apples for thirty-four years and had always received a satisfactory price. He had always found that good quality fruit brought a good price. He grew only three varieties, Hubbardston, Rhode Island Greening, and Baldwin. He thinned his fruit and had at the time two hundred barrels which he proposed to sell the first of February. The market price for ordinary apples was then seventy-five cents to one dollar and twenty-five cents a barrel.

Mr. Wood met the Doctor the next year and asked him what he obtained for his apples. Dr. Fisher replied that he sold his Rhode Island Greenings in New York, where there was a better market, for $3.25 per barrel, and his Baldwins and Hubbardstons in Boston, for $3.00.

There is no crop that can be grown with so little fertilizing and with so little expense in cultivation as the apple, and there is no reason why a farmer cannot have a good crop and find a market at a good price.

To get good fruit it must be thinned in early summer. It may

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seem wasteful of fruit and time but it pays to do it for those left to ripen will be larger and therefore worth more money. There is no trouble in marketing good apples. Satisfactory locations for orchards can be found within twenty-five miles of Boston and even within ten miles, thereby bringing the grower into close touch with a market. In the earlier years of an orchard the ground between the trees can be used for the cultivation of vegetables.

A half-million barrels of apples were exported from Boston the past season.

The next important fruit crop in New England is undoubtedly the pear. The pear is a more constant bearer than the apple and comes into bearing more quickly.

It is of no use to set out dwarf pears in a light, dry soil. The quince stock upon which a dwarf is produced requires a strong, moist soil, and where it can be grown in a proper location the dwarf varieties produce better fruit. It is a custom in planting a pear orchard to set out every other tree a dwarf, twenty feet apart, and after the standards have attained the proper size to cut out the intermediate dwarfs. A dwarf, however, can be readily converted into a standard if found desirable.

Unfortunately we have too many varieties of pears and, though Marshall P. Wilder forty years ago showed at one of our exhibitions 417 varieties and Charles M. Hovey 360, yet the desirable varieties could be counted on one's fingers. Fifty years ago the question was asked at one of these meetings, "What is the best variety of pear to grow if only one could be planted?" President Walker said, "the Vicar" and Mr. Wilder agreed with him. Now no one thinks of growing it.

At present the most desirable varieties are the Bartlett, Sheldon, Seckel, Bosc, Clairgeau, Dana's Hovey, and Anjou.

The Anjou I would not recommend so strongly for in recent years it seems more liable to disease. The Dana's Hovey is undoubtedly the finest pear, in my opinion. It is a remarkably good pear, a seedling from the Seckel, and comes at a season when there is less competition. It does not appear to be very generally cultivated, but no mistake would be made in growing this pear for home use. It brings the highest price of any pear

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in the market. It had been sold, in the speaker's remembrance, for seven dollars a bushel; now the average price is from three to three and one-half dollars.

The Clairgeau pear is a pear that looks well and has been a popular variety in the Boston market in years past, but it is a pear that no grower for home use should have in his orchard.

The next fruit in importance is the peach, although it must be admitted that it is a rather uncertain crop. There appears to be no variety exempt from the attacks of disease, and no variety free from the danger of winter killing. However, the growers in Connecticut seem to succeed very well by frequent renewals of their orchards.

James H. Bowditch remarked that no fruit was so satisfactory as good apples, and he could confirm Mr. Wood's opinion of the quality of the McIntosh Red, and also that the Northern Spy was very good.

Joshua C. Stone expressed the opinion that twenty-five miles from Boston was too near to start an apple orchard; go a hundred, he said, or go to New Hampshire where land could be had for a dollar an acre. Anyone who sets out an orchard within ten miles of Boston will regret it, for in time the land would be more valuable for other purposes than apple growing. He said that some of the finest apples in the market today came from Oregon. He disagreed with Mr. Wood in the manner of packing fruit, and said that it was in accordance with approved business methods that the best should be put on top in order to attract the attention of the buyer. The man who packed his apples with the big ones at the bottom was too good for this world.

Rev. Charles L. Hutchins said that he did not agree with the previous speaker in regard to planting an orchard so far from the city. He had already a good-sized orchard at Concord and intended to set out several hundred more trees, and came to the meeting today for the purpose of getting information on the subject. While he did not himself expect to make much commercially out of his orchard it would benefit his children.

If we can't have large families, as President Roosevelt advises, we can have beautiful trees which, he thought, was the next best

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thing. He had come to the meeting with several questions to ask:

First: Are we following the best method in packing fruit in barrels?

Second: in regard to the cultivation of an orchard on a hillside, What can be done to prevent the humus from being gradually washed down to the lower levels, if cultivation is practised?

Third: We are told in grafting to get the very best scions possible, but how shall we obtain them?

Fourth: I would like to ask if it would do to set out a new orchard on the site of one seventy-five years old. If so, is it better to plant at once or wait a year or two: to use the same holes or make new ones?

In partial answer to these queries Mr. Wood said that at the Agricultural College at Amherst there was an orchard situated upon a rather steep hillside. It was cultivated crosswise and a cover crop of grass or cow peas sown which prevented washing in the spring, after which it was plowed in.

Varnum Frost said that it was not well to grow new trees in an old orchard.

Aaron Low said in regard to the question of planting new trees in an old orchard that it was the height of folly to do it. The old orchard had sapped the vitality of the land. Regarding the packing of fruit and vegetables he had found in his experience that it paid to pack them correctly. He had made a practice of packing a few apples of extra quality for which he readily obtained the price he asked for them. Their quality made them worth it. Last year he had lost the greater part of his crop of peaches and plums on account of the severity of the winter, and it will be necessary to spray our trees a number of times during the season to protect them from insects and fungi.

Benjamin P. Ware gave an account of his method of keeping apples in his cellar until June without artificial refrigeration. He placed them in open barrels or large boxes and was careful to handle them as little as possible and to keep the cellar cool by closing the windows during the day and opening them at night until freezing weather approached. He had no difficulty in keeping apples for the June market by these means. He had

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experienced some trouble in growing Gravensteins; he had grafted ten or twelve trees to this variety but could not get them to bear and he had not produced a barrel from the whole lot since grafting them over. He asked for the experience of others on this point.

Mr. Stone replied that it is impossible to graft the Gravenstein with success. The only way is to grow it from young trees.

Christopher C. Shaw stated, regarding the Gravenstein apple, that had he set out this variety it would have been many dollars in his pocket. He had grafted over many trees to Gravensteins and felt he had made no mistake and the grafted trees did well with him. He recommended also the Danvers' Winter Sweet and he believed the McIntosh Red to be the coming apple. It was a good grower, a good keeper, and of good flavor. It had one trouble, a tendency to scab, but he thought that could be controlled by spraying. He was sure that in a few years it was to be the money getter of New England apples.

Wilfrid Wheeler said that the orchard of Samuel Hartwell in Lincoln was grown in grass land, but the grass after cutting was left on the ground as a mulch.

Mr. Wood remarked that nine-tenths of the orchards of New England are grown in sod. The orchard of Dr. Fisher at Fitchburg was grown thus but the grass was cut three or four times a year and left on the land. He thought that the fruit gradually deteriorated under sod culture.

William P. Rich said that there had been in recent years much discussion among fruit growers upon the question of orchard tillage, and that the weight of opinion seemed to be in favor of open cultivation and the sowing in the early summer of a cover crop to be plowed under the succeeding spring.

Mr. Wood added that fruit growers should study the markets in which their fruit is to be sold. Varieties are not equally popular in all the cities. In Worcester the Sutton Beauty and the Palmer Greening will bring prices that make these varieties especially desirable to grow. The McIntosh brought the highest price in Boston last year of any apple sold and it is bound to become popular in this market on account of its beauty and excellent quality.

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AN ORCHARD SURVEY AND WHAT IT MEANS.

BY PROFESSOR JOHN CRAIG, CORNELL UNIVERSITY, ITHACA, N. Y.

Abstract of an illustrated lecture delivered before the Society, February, 4, 1905.

The purposes. The purposes of an orchard survey are manifold:

1. To correlate geologic and soil characters and conditions.
2. To compare successes and failures and ascertain underlying causes.
3. To investigate methods of orchard management and to determine the influence of each.
4. Finally, and in short, to collect and tabulate such a mass of data upon practical apple growing as will place many moot questions beyond the range of peradventure, and furnish indisputable evidence for the assistance of those who are horticultural leaders and teachers.

A General View of the Apple Industry.

"The * value of the orchard products on the farm has increased from 33 cents per capita in 1850 to $1.11 per capita in 1900. If all fruits are included the value would be about fifty per cent greater: the amount for 1900 being $1.74 per capita. Much more than these amounts must be spent by the consumer, for the transportation, commissions and profits increase the cost several times. A larger proportion of the crop may now be exported, but the great change has been in the creation of a home demand for fresh fruit, such as does not exist in any other country. The great fruit market of the world is the American workman, and his staple fruit is the apple.

* From Bulletin 226, Cornell University Experiment Station.

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Relative increase of population and of value of orchard products from the census reports.

	Population	Per cent of gain in 10 years	Value of orchard products	Per cent of gain in 10 years
1850	23,191,876	——	$7,723,186	——
1860	31,443,321	35.6	19,991,885	159.0
1870	38,558,371	21.3	38,000,000	90.0
1880	50,155,783	32.4	50,876,154	33.9
1890	——	Gain in 20 years	——	Gain in 20 years
1900	75,568,686	52.1	83,751,840	64.6

Relative rank in fruit production of the ten leading fruit-producing states, from the census of 1900.

	Orchard Products.			All Fruits.		
	Total value	Per cent	Rank	Total value	Per cent	Rank
United States	$83,751,840	100.0	—	$131,423,517	100.0	—
California	14,526,786	17.3	1	28,280,104	21.5	1
New York	10,542,272	12.6	2	15,844,346	12.1	2
Pennsylvania	7,976,464	9.5	3	9,884,809	7.5	3
Ohio	6,141,118	7.3	4	8,901,220	6.8	4
Illinois	3,778,811	4.5	5	5,455,213	4.1	6
Michigan	3,675,845	4.4	6	5,859,362	4.5	5
Indiana	3,166,338	3.8	7	4,630,169	3.5	7
Missouri	2,944,175	3.5	8	4,309,813	3.3	8
Virginia	2,662,483	3.2	9	3,515,475	2.7	10
New Jersey	2,594,981	3.1	10	4,082,788	3.1	9

The magnitude of the apple crop. Of the total number of orchard trees reported in 1900, 55 per cent were apple and these produced 83 per cent of the total number of bushels of fruit reported. The average production of apples is about two to three bushels per capita.

"Of the crop of 175,000,000 bushels in 1899, the States of New York, Pennsylvania, and Ohio produced nearly 69,000,000 bushels, or over 39 per cent of the total crop in the United States. New York justly claims first place in the quantity and quality of her apple crop. Apples are grown in nearly all parts of the state, but it is in the lake counties, Niagara, Orleans, Monroe, and Wayne that the industry has been most extensively developed. In 1900 fifteen states outside of New York had a greater number of apple trees than the combined number in these four

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counties; but only nine of these states gave a larger crop in 1899. No other county in the United States produced as many apples as any one of these. Only four counties, one in Illinois, one in Missouri, and two in Arkansas had as many trees as any one of these."

How the work was conducted. An inspector was sent into the field equipped with a note book, soil auger, and camera. His note book contained blanks prepared for collecting information on age, fertilization, tillage, spraying, past and present troubles, yields, markets, and prices. The soil and site of the orchard were examined with a view of correlating present condition with aspect and topography. About five hundred orchards were critically examined and the following results were secured.

Some Important Findings.

Influence of tillage. The following table shows the results from different methods of soil treatment, and emphasizes the benefits of cultivation over sod treatment:

Yield in bushels of tilled and sod orchards. Average for the entire county of trees set before 1880. Orchards all well cared for.

	1900			1901		
Treatment	No.	Acres	Average yield	No.	Acres	Average yield
Tilled 5 years or more	25	175¾	348	22	177¼	99
Tilled most years	22	181	353	21	188	38
Sod most years	24	209	260	25	244½	72
Sod 5 years or more	25	206	224	31	249	45

	1902			1903			
Treatment	No.	Acres	Average yield	No.	Acres	Average yield	Four year average
Tilled 5 years or more	38	401¾	311	23	345	326	271
Tilled most years	38	261½	339	16	99½	249	245
Sod most years	46	365½	235	15	122	257	206
Sod 5 years or more	47	356½	269	22	157¾	263	200

Mr. Warren, who had charge of the field investigations, asks, "Does tillage pay?" and continues: "This table does not show that every sod orchard should be tilled, but it does show that it

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would pay to till the average one. If a sod orchard is giving good yields, and if the trees are making sufficient growth to keep up their vitality, it may be desirable to keep it in sod. By the liberal use of barnyard manure or straw mulch, an orchard may be kept in good condition without tillage. The trouble is that so many do not receive enough of either. The same results may be accomplished with much less manure if the orchard is tilled. If the orchard is in sod and is not yielding well, or if the trees are losing their vitality, even if the yield is still good, it will probably pay to till."

Pasturing methods. The following table gives strong evidence in favor of hogs over sheep or cattle in an orchard. Cattle rub trees, break branches, and are generally injurious.

Yields in bushels for 1902, with various methods of sod treatment. Trees set before 1880.

Treatment	No. orchards	Acres	Average yield
Pastured with hogs	22	105½	271
Pastured with sheep	15	232	216
Pastured with cattle	54	392	159
Sod, not pastured	47	256½	185

The necessity of fertilizing orchards received unequivocal support, for 292 orchards representing 1200 acres yielded 257 bushels per acre, while 111 orchards unfertilized yielded 202 bushels per acre.

Pruning. This is often badly done. Long stubs promote decay and hollow trees. Heavy pruning brings about an unhealthy condition of tree. We can summarize as follows:

"1. Large limbs should not be removed unless it is absolutely necessary.

"2. When such limbs must be removed, the pruning should be so done as to favor rapid healing of the wounds.

"3. Large wounds should be protected by paint till the tree can seal them."

Spraying. On this important practice our survey presents the following conclusions:

"The average price per barrel of the sprayed apples was $2.02; of the unsprayed, $1.80. From the sprayed orchards 15

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per cent of the crop was barreled; from the unsprayed, 12 per cent. Without considering the apples that were evaporated by the grower, the average price of sprayed apples was 31.8 cents per bushel; of unsprayed, 27.7.

"If we count the apples that were evaporated by the growers as worth 20.7 cents, the average price paid for apples by the evaporators, then the income per acre from sprayed orchards averaged $77.84; from the unsprayed, $63.

"Most of the sprayed orchards were sprayed but once. Apples from many of these brought no higher prices than the unsprayed ones, but some of those that were well sprayed gave so much better yields and secured so much higher prices that they were able to raise the average as shown above."

How Far Apart Should we Plant our Trees?

Our field expert unhesitatingly says: "One of the greatest enemies of the apple orchard in Wayne County, as in most other apple-growing regions, is the apple tree. When the greater part of the orchards were planted, about forty years ago, there was a universal tendency to plant too closely. On 43 per cent of the area planted before 1880 the trees are 30 × 30 feet or less; 82 per cent are 35 × 35 feet or less. Only 18 per cent are over 35 × 35 feet; and a part of these were planted more closely, but have been thinned."

Here are the yields for the different distances, and these figures speak more eloquently than any other form of argument:

"Four year average:

Not over 30 × 30 feet	186 bushels.
31 × 31 to 35 × 35 feet	222 "
36 × 36 to 40 × 40 feet	229 "

"The more trees per acre the less the yield! The average yield for four years of orchards where the trees are not over 30 × 30 feet apart is 186 bushels; for those over 30 × 30 feet but not over 35 × 35 feet, 222 bushels; for those over 35 × 35 feet, 229 bushels."

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Soils. The best soil in Wayne County for apple production is a brown gravelly loam, rather loose in character and underlain with heavier gravelly loam. It is fair to conclude, however, that "while the kind of soil is important in this locality, it is evidently not the most important factor in apple production and is not as important as the kind of treatment that the soil receives. The kind of care required varies with the soil. The Miami silt loam will doubtless produce a good crop with less manure than is required on any of the other types. The Miami stony loam is next strongest. The other types require larger applications of manure, but give good results when so treated. These latter are more open and are more in need of humus. The soil with the bed rock near the surface is entirely unsuited to apples. For the best production of apples there should be at least six feet of well-drained soil in every part of the orchard."

Drainage. This is a subject of the greatest importance with a perennial crop like the apple.

"*Losses caused by lack of drainage.* Of the 1,773½ acres of orchard land in Walworth, a township in Wayne Co., only 182 acres have any kind of under drainage. Most of these have only a stone drain or two in a particularly wet place. A few have tile drains. Fifty-four orchards, aggregating 232 acres, are reported as in need of drainage. This means that, in the opinion of the inspector, some tile drainage would pay. The average yield of these 54 orchards in 1902 was 203 bushels, 42 bushels below the average of the other orchards in this town. Of the 1,987½ acres inspected in the remainder of the county, 317 acres have some underdrains, but 831 acres need drainage in whole or in part."

Aspect. In Wayne County this seems to be a factor of some importance. "The easterly slopes in Walworth gave a larger yield each of the past four years than have the westerly slopes. The difference in 1902 was 23 bushels per acre in favor of the easterly slopes. In each of the other years the difference was greater. The north part of the county does not show this marked uniform difference. The differences are greater than one would expect. In each of the four years the northeast slopes have exceeded the northwest, the east have exceeded the west; the only exceptions are that in two cases the southeast have failed

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to exceed the southwest. The four-year average in Walworth was 43 bushels in favor of easterly slopes."

The renter. The yield of apples from rented farms is much below that of farms managed by the owners as shown by the fact that owned farms yielded a four-year average of 210 bushels per acre, while rented farms yielded only 174 bushels per acre.

These are some of the leading features covered in this survey of an important apple-producing county in western New York. The moral of it all is that tillage, fertilization, pruning, and spraying, soil and aspect are important features in successful orcharding; but unless they are coupled with intelligent business management, the enterprise will fail. Practice, principle, and business methods must go together. The orchardist should not only know how much his orchard is bringing him in, but he should know how each of his trees is yielding. They do not all need the same treatment. The problem must be studied in general terms, but also in terms of individual trees and good business management.

Discussion.

Prof. F. A. Waugh inquired concerning the difference in the income from sprayed and unsprayed orchards.

Prof. Craig said that the difference in the income of sprayed and unsprayed orchards might not be more than ten dollars an acre, but occasionally runs as high as twenty-five or thirty dollars. He thought that three sprayings, as a rule, were necessary. The first when the buds began to show color; the second upon the setting of the young fruit; and the third depended on weather conditions. Dry weather and fungous growth are not correlated, but moist weather and fungous development are.

An inquiry was made as to how large an orchard would have to be to make it pay to use a power machine for spraying.

To this the Lecturer replied that for an orchard of fifteen or even ten acres on level ground it would pay to have a power sprayer. Some of these machines as now made are marvels of simplicity.

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Robert T. Jackson asked as to the relative value of growing dwarf apples.

Prof. Craig replied that the dwarf apple has a place, especially in New England, where land is high priced and where high class apples have a market.

Theodore F. Borst asked the lecturer's opinion as to the value of growing shelter belts for orchards as well as for plantations of forest trees.

Prof. Craig replied that in certain exposed situations shelter belts were desirable, especially in the case of wind-swept orchards on the coast. They were useful also in preventing the too rapid evaporation of moisture from the land.

Miss Cora H. Clarke inquired if there was any danger of poisoning from the spray remaining on the fruit.

Prof. Craig answered that a very few cases of poisoning had occurred by this means, but that chemists had tested this matter and found that one would have to eat about a ton of fruit to get sufficient poison (Paris green) to cause injurious results. As a rule if the spraying is done carefully no harm can ensue.

William N. Craig asked what were the principal varieties of apples grown in western New York.

The Lecturer stated that the leading kinds were the Baldwin, Greening, Roxbury Russet, and Northern Spy. A number of other varieties were also grown, such as the Hubbardston, Maiden Blush, and Spitzenburg, and, he was sorry to say, they grew a few of the Ben Davis.

James H. Bowditch inquired if the disease of canker was not more liable in orchards poorly cared for than in those well kept. To which the answer given was "certainly."

Warren H. Manning asked if it were not advisable to plant shorter-lived trees as fillers in young orchards; such as the peach or plum; to be removed when the main orchard is well grown.

Prof. Craig replied that it would depend upon conditions. He would recommend apples as fillers if one would rigidly cut out when necessary. The fillers are, however, often left a year or two too long and are only removed after damage has been done.

Mr. Spooner, referring to the subject of neglected orchards,

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inquired how long it would take to renovate them by pruning and cultivation.

Prof. Craig stated that he would advise the purchase or rental of such run-down orchards of good varieties, and that it would take from five to six years to bring them into paying condition, if they were not too old or decayed. He had known one to produce a paying crop in three years.

The first thing to be done to improve a neglected orchard was to open up the soil by shallow plowing or by means of a spring-tooth or disc harrow; next prune moderately. Then fertilize with stockyard manure or other nitrogen bearing substances. This treatment to continue about three years. He gave an instance in which a farm had been paid for in a few years from the crop of an orchard of nine acres of Baldwins that had been thus treated.

J. Woodward Manning inquired how long one could depend upon an apple orchard's producing capacity.

Prof. Craig answered, sometimes ninety years; and he could see no reason why they should not last hundreds of years if properly cared for.

Joshua C. Stone said he could see no reason why an apple orchard should not live and be productive even beyond a hundred years. His trees looked as large fifty years ago as they do now.

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DWARF FRUIT TREES.

BY PROF. F. A. WAUGH, AMHERST, MASS.

Delivered before the Society, February 11, 1905.

There used to be considerable interest in dwarf fruit trees fifty to seventy-five years ago. They were nearly always mentioned in the pomological discussions, and all the text-books of that time made extended reference to their use and propagation. This was partly due to the fact that American horticulture at that time had not broken entirely away from the horticulture of Europe. Dwarf fruit trees had always been grown in the old country and the European books gave liberal attention to them. There was still another reason for the attention given them, however, in the fact that they were considerably grown. At that time, furthermore, the great commercial interest of the present day had not come to the front. But during the last few years these commercial enterprises have monopolized our thought and we have largely forgotten about the old-fashioned amateur horticulture to which the growing of dwarf fruit trees belongs.

At the present time there are many indications that we are coming back to some of the old-fashioned ideas, especially as regards amateur fruit growing. There is a lively renewal of interest in small grounds and gardens. These circumstances, along with several others, are bringing dwarf fruit trees back to notice; and in all probability they will come back into vogue to a certain extent. At all events there is very much in the subject to interest us; and our knowledge of dwarf fruit trees, their propagation, pruning, and training, ought to be reviewed and brought up to date.

First of all it may be proper to tell what a dwarf fruit tree is. That seems like too simple a question to be mooted, but it is a question I have so often asked me that I think best to make the explanation. A dwarf fruit tree is simply one which is made to

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grow in smaller stature than the same variety reaches under ordinary conditions of treatment. There are three principal ways by which this dwarfing is secured. These are (1) propagation, (2) pruning, (3) training. The first method is by much the most important. A dwarf tree is nearly always propagated by budding or grafting on some kind of a root which grows slowly, and thus the slow-growing root checks the growth of the top to such an extent that the top is dwarfed. The commonest and most striking example is the propagation of dwarf pear trees. These are grown by budding ordinary varieties, such as Bartlett, Duchess, or Anjou, on quince roots. The quince root grows much more slowly than the pear root so that a Bartlett pear tree on a quince root will be much smaller at the same age than a Bartlett tree on a pear root. I will refer to this matter as it affects other species of trees further on in this lecture.

Pruning has also been referred to as one of the means of dwarfing trees. Many trees are kept back to their small stature largely by this means. If they are allowed to grow unpruned they will eventually become as large as any trees of the variety. This refers to all kinds of dwarf trees. More or less heading back is always required to keep the trees in their dwarf form.

In a somewhat similar manner trees are retained in their small forms by training them, that is by tying them upon a trellis or against a wall or to stakes, and preventing their growth beyond prescribed limits. Reference will be made also to this subject later in this lecture.

The first question which comes up in presenting such a subject as this is that of its practical utility. Almost every one will ask at once "What is the value of dwarf fruit trees?" This is a fair question and it ought to have a fair answer.

We may as well say at once that dwarf fruits are not very promising from a commercial point of view. They will not in any way rival standard trees for large orchards. In fact it is still a question whether fruit can ever be grown for market in this country profitably on dwarf trees in competition with fruit grown in the usual way. I am inclined to believe that certain fine dessert varieties can be grown on dwarf trees for fancy trade where large prices may be secured. We have a constantly

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increasing market of this kind in America. It is not unusual for fancy apples in our city markets to bring twenty-five cents a piece. There are many customers who want the very finest fruit that can be produced without any question as to the price. Such persons would pay fifty cents a piece for apples without any objection, providing that the fruit was really fancier than anything else in the market. It is well known of course that such prices as these are frequently realized in the markets of Europe. Any grower who might be able to reach such customers as these could well afford to grow fancy fruit on dwarf trees.

Dwarf trees are of practical value however for other purposes. They are good for interplanting in an orchard of standard trees. An orchard of standard pears, for instance, might be interplanted with dwarf trees, and this is sometimes done. Dwarf trees come into bearing much earlier than standard trees and can be cut out at any time when the large trees require the entire space. Dwarf apples are sometimes used for planting between rows of standard apples.

Anyone who wishes to keep a large collection of apples, pears, or plums or who wishes to test new varieties will find dwarf trees very desirable. They occupy much less ground and they bring the new varieties into bearing at a much earlier time. Dwarf apple trees, for instance, usually bear at two or three years old while standard trees of the same varieties bear at seven to nine years.

Anyone who wishes to grow fine specimens for exhibition will find dwarf trees even more useful. Beyond the fact already mentioned, that a large collection of varieties can be maintained in a small area, he has the advantage of producing the very finest and showiest specimens of the variety under culture. As a rule, to which I do not know any exceptions, the finest specimens of apples, pears, peaches, and plums can be grown on dwarf trees.

The greatest value of dwarf fruit trees, however, lies in their adaptability to the needs of small landowners. A large and increasing proportion of our population now lives a suburban life. They are neither on the farm nor yet in the city. Moreover, these people are taking a much larger interest than formerly in garden affairs and are doing more in growing flowers, fruits,

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and vegetables. Such persons have only small grounds under cultivation and cannot grow many large trees. In fact some of the city lots where really good gardening is done would be entirely monopolized by three or four full-sized Baldwin apple trees. Dwarf apples, pears, or plums which can be set at six feet apart, or even less, fit the space much better. A comparatively large number of trees can be planted and many more varieties can be indulged in.

Another great advantage to this class of the population lies in the fact that dwarf trees come into bearing much earlier. Many of these people live only a short time in any one place. They move about frequently and it never seems worth while to plant apple or pear trees which will bear no fruit inside of seven or eight years. In seven or eight years they expect to be somewhere else. But trees which will bear fruit in two or three years might seem worth while. These may be planted on rented land. It seems to me that some special effort ought to be made to bring this matter to the attention of the suburban gardeners.

Dwarf trees are propagated by the usual methods of budding and grafting. They are more commonly budded than grafted, although whip grafting, side grafting or veneer grafting may be successfully practiced with apples or even with pears. In certain cases such grafts prove very satisfactory in the propagation of plums. Still it remains true that budding is more commonly employed. In either case it is largely a matter of convenience. Each nurseryman follows either method which seems most expeditious in his own case. There is no difference in the tree after it has grown. A budded tree is just as good as a grafted tree and vice versa.

The principal problem in the propagation of dwarf fruit trees is the choice of suitable stocks. I will mention here the stocks which have been found by experience to answer the purpose best.

Apples are usually dwarfed by propagating them on Paradise stocks. Paradise is simply a very dwarf apple which is largely grown from layers. The young trees are cut off near the ground and are encouraged to throw up sprouts. These are covered over with earth and when one or two years old the stools are taken

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up and divided. These Paradise stocks come from France where this work is done chiefly.

The Doucin stock is also used to some extent for dwarfing apples. It produces a tree midway between the very dwarf form grown on Paradise and the ordinary standard form. It has not been so much used in this country. Doucin stocks come also from France and are grown in the same way as Paradise stocks.

On account of the slow growth of the Paradise and Doucin apples, trees grafted or budded on them make a slow and irregular growth in the nursery. It is difficult to grow a nice block of trees, especially on Paradise stocks. This is why the nurserymen in this country have practically given them up. Any tree grower would be compelled to get about two or three times as much for dwarf apple trees grown on Paradise roots as for the same varieties grown in the ordinary way, because it costs him two or three times as much to grow a given number.

Pears are practically always budded on quince stocks for dwarfing. The quince most used for this is Angers which comes also from France. A few varieties of pears will not form good unions on quince roots. Such varieties are "double-worked." The process of double working is as follows: The quince root is budded with some variety as Anjou which grows well upon it. After this pear scion has grown one year the refractory variety, say Seckel or Dana's Hovey, is budded on the Anjou upon which it makes a good union. The completed tree as it is planted in the orchard then consists of three parts, the pear top of the desired variety, the quince root, and the very short section of some other pear whose sole office it is to unite the two uncongenial neighbors.

Peaches and nectarines are dwarfed by working them on plum roots. They will grow fairly well on almost any good plum root. The Myrobalan plum which is one of the easiest of all stocks to be worked has been largely used. St. Julien plum is probably better and is considerably used in France and Germany. The peach may also be easily propagated on the dwarf sand cherry which gives a good dwarf peach tree of specially small stature.

The old rule for dwarfing plums was to work them on Myrobalan plum roots. A fairly small plum tree can be produced in

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this way provided it is kept vigorously headed back. The Myrobalan plum stocks, however, have been used largely in this country for the propagation of all ordinary plums, so that a majority of what we know as standard plum trees are really growing on this so-called dwarfing stock. It is obvious that some still slower growing stock must be found if the requirements of the situation are to be fully met. Fortunately plums may be worked on a great variety of stocks and some of these seem to offer the required characteristics. In Iowa, Minnesota and the neighboring states plums are very largely grafted on Americana roots, that is on some of the seedlings of *Prunus Americana*. These stocks produce a tree considerably dwarfer than those grown on Myrobalan plums. Moreover this stock is hardy, vigorous, healthy, and in all other respects satisfactory. Some persons have complained that it sprouts from the roots, but I have never observed this trait, although I have seen many plums on Americana roots. I do not think that this stock is more objectionable in the way of sprouting than many others.

Another plum stock which has been extensively used in an experimental way and which offers special promise as a dwarfing stock for plums, is the sand cherry. This plant is native to Massachusetts, and, in fact, in some of its forms, to practically all the northern states as far west as the Rocky Mountains. Its different forms are known botanically as *Prunus pumila*, *P. cuneata*, and *P. besseyi*. These all seem to be good stocks although our experience has been specially happy with *Prunus besseyi*. All kinds of plums and peaches grow splendidly on this root. They make an exceptionally fine growth the first year in the nursery, in this respect differing markedly from most dwarf trees. The great difficulty experienced thus far has been in securing stocks. We are now experimenting with different ways of propagating *P. pumila*, *P. besseyi*, and *P. cuneata* and as soon as some satisfactory method of producing these rapidly and cheaply has been established they bid fair to become the leading dwarfing stock for plums.

Dwarf cherries are sometimes spoken of. For the most part the so-called dwarf cherries are merely such varieties as Morello, Vladmir and other north European sour cherries which never

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make a large tree. No really satisfactory dwarfing stock for the cherry is in commercial use. There seems to be a chance, however, of discovering some native plum or cherry which answers the purpose.

Dwarf trees are planted in the same way that standard trees are, with two exceptions. First, they are usually planted shallower for the reason that when deeply planted they sometimes take root from the scions and cease to be dwarf trees. The second exception lies in the fact that they may be planted much more closely together. While thirty-five feet apart is looked upon as being proper spacing for standard apple trees, dwarfs may be planted at eight or nine feet apart and indeed can be very well managed for a number of years at a distance of four to six feet apart. A gentleman told me recently of an orchard of dwarf apple trees now over thirty years old and in fairly good condition, the trees having been planted six feet apart and maintained at that distance to the present time.

Some of the forms of dwarf trees, especially upright cordons, can be planted even closer together. The space commonly recommended for upright cordons of apple and pear is sixteen to eighteen inches apart. To show the possibilities of condensation which lie before one in planting dwarf trees, I may say that in a garden of less than one-quarter of an acre I have planted over five hundred fifty permanent trees. When the plan is complete there will be about six hundred or at the rate of twenty-four hundred trees to the acre. Many of these are already in bearing. Standard apple trees are ordinarily planted thirty-five to the acre.

Dwarf fruit trees are usually trained in some particular form. This training is not absolutely essential, but more or less of it is desirable in order to get the best results. The simplest methods appeal most to the majority of people, especially in this country. Still I am sure that garden lovers who become interested in this line of work will go more and more into the different methods of formal training.

There are almost an infinite number of ways in which trees may be trained. Some of these ways are merely fantastic and only comparatively few of them are really useful. All the really

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practical ways can be easily reduced to eight as shown in the following:

A. Trained in tree-like form.
   a. Pyramid.
   b. Bush.

B. Trained with several branches in one vertical plane.
   a. Espalier.
   b. Fan espalier.
   c. Palmette-Verrier.

C. Trained to single stems — Cordons.
   a. Upright.
   b. Inclined.
   c. Horizontal.

The pyramid differs from the bush form chiefly in the fact that in the former a straight central stem is maintained from which secondary branches radiate, while in the bush form the center is cut out and several radiating side branches constitute the framework of the tree. The bush form is better adapted to apples, while the pyramid can be better applied to pears.

The espaliers of different forms are extremely popular where training is practiced and are considered to be amongst the most valuable forms for growing fancy fruits. They require of course a great deal of care and attention in order to produce the necessary forms and to keep them in health and vigor.

Cordons consist of a single stem which may be placed in almost any position; the three common forms being vertical, oblique, and horizontal cordons. These are simple and easy to grow either against a trellis or against a wall and they produce very excellent results when properly cared for, especially with pears and apples.

The pruning of dwarf fruit trees, especially those trained in particular forms, is a somewhat complicated subject. Elaborate directions can be found in any of the European fruit books, but nothing has been written in detail on this subject in America. One or two general principles may be stated here, and these must suffice for the present.

The general management of the tree can be best understood by referring to one of the simplest forms, say the vertical cordon.

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This tree is composed of a single stem along the sides of which fruit spurs are formed and fruit is borne. Each year this cordon is encouraged to throw up strong-growing shoots or leaders at the top, and at the same time is prevented from making any strong wood growth along the sides of the stem. The strong shoots at the top feed the tree, or as we sometimes say, "they pump up the sap." As fast as shoots start from the sides of the main stem they are pinched back. This pinching may be required six or eight times, possibly even more, in the course of a summer. This constant checking of the vegetative growth from the side buds on the stem tends to encourage the formation of fruit spurs and fruit buds in this region, which is indeed the fundamental object of the whole scheme of pruning. At the beginning of the succeeding year the leading shoots at the top of the cordon are cut back almost or quite to the point where they began the previous year's growth. New shoots arise there year after year from almost the same point to be annually sacrificed in the same way.

Considerable skill and experience is required in pinching back the side shoots so as to encourage the formation of fruit spurs and buds. Different species require different treatment in this respect, since the fruit spurs form differently on different kinds of trees. Roughly it may be said that with most fruit trees these side shoots should be pinched back as soon as they have made six leaves or earlier. They should be headed back to not more than four buds (or leaves). Many of them will promptly start again. This second growth should be headed back somewhat sooner, say when it has reached a length of four or five leaves. It should also be headed back more closely, say to two or three buds. If the shoot starts a third or fourth time, as sometimes it does, it should be repeatedly pinched back, each time earlier and each time more severely. Usually all further tendency to vigorous growth will be stopped early in the summer and after the second or third pinching. This is more likely to be the case with apples and pears. Peaches and plums have to be allowed somewhat freer growth.

When fruit spurs become old and weak as they will commonly do on the apple and pear after about five years, they should be

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cut out altogether or headed back to within an inch or so of the main stem. Sometimes a new growth will be secured from the base of the spur and this new growth can be promptly developed by the system of repression outlined above into a new fruit spur. In some cases where the fruit spurs die or have to be removed, it is even necessary and practicable to bud or graft in new shoots or new fruit spurs. This looks like a good deal of work to be given to a tree, but it is not more difficult or exacting than many things that we already do in our garden work.

In conclusion I wish to reiterate the statement that the growing of dwarf fruit trees is not urged upon the public. It is not recommended to everybody and especially it is not claimed to be commercially practicable.

On the other hand it will bear serious consideration by all that large class of people who have small grounds of their own and who wish to grow a limited quantity of fine fruit for their own use. The large number of trees which can be put on a small area, and the comparatively early age at which they may be brought into bearing are considerations of prime importance in the eyes of all small landowners.

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BACTERIA AS FERTILIZERS.

BY DR. GEORGE T. MOORE, WASHINGTON, D. C.

ANNUAL LECTURE UNDER THE JOHN LEWIS RUSSELL BEQUEST.

Abstract of an illustrated lecture delivered before the Society, January 23, 1904.

It is hardly necessary for me to discuss in detail the effect of leguminous crops upon soils or the necessity for the roots of these crops being provided with the proper nodules in order to obtain the greatest good from them. You all know how necessary nitrogen is in the soil, and any means calculated to increase the quantity of this most important plant food is, of course, of great practical value. From the earliest days of agriculture it has been recognized that all plants belonging to the Leguminosae, that is, peas, beans, clover, alfalfa, etc., had a decidedly beneficial effect upon the soil, but it is only within recent years that we have been able to explain this phenomenon.

Although it has been a matter of common observation that the roots of leguminous plants were usually provided with peculiar swellings or nodules, these were popularly supposed to be due to the bites of worms or insects, and that they were directly connected with the fertilizing power of the plant was not discovered for many years. Even after it was shown that leguminous plants devoid of these nodules were unable to benefit the soil, there was the widest difference of opinion as to why they appeared upon some plants and were absent from others. Now we know that the legume nodule is the direct effect of the presence of myriads of bacteria which have made their way into the roots through the root hairs, and as a result of the irritation the plant manufactures the nodule, each cell of which is full of bacteria.

Although it is true that thousands of acres of land in this country and abroad are well stocked with these nodule-forming bacteria, it is likewise a fact that there is equally as much land

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which does not naturally contain these beneficial organisms. Practical farmers have realized for years that some parts of a field would produce clover or alfalfa successfully, while others, which seemed to be in fully as good condition and were as carefully cultivated, failed to produce a good stand. Many times this condition could be remedied by the addition of lime or some careful cultural method, but it was often found that the roots of the plants which failed showed no nodules and it was evident that the nodule-forming bacteria did not exist in that spot. For this reason it became necessary to devise some means of artificially introducing into the soil the nitrogen-fixing bacteria. Naturally, the easiest and simplest way of accomplishing this was to transfer soil from a field which had produced nodule-bearing plants and by this means introduce the bacteria into the soils which were devoid of them.

Transferring soil from one field to another on the same farm is a comparatively simple and inexpensive process, but when, as is often the case, thousands of pounds of soil have to be shipped hundreds of miles, the operation becomes more difficult. It is also a fact that certain diseases of plants, the spores of which remain in the earth, are widely disseminated by such means of attempting to introduce nodule-forming bacteria, and in some cases where the disease causes great damage to leguminous crops, it has become necessary to abandon altogether this method of inoculation. There is also great danger of introducing objectionable weeds and insect pests, so that if any better means of inoculating the soil could be devised, it would certainly be desirable. It should be understood, however, that many cases of inoculation by soil transfer in this country have been eminently successful, and, although the percentage of failures is greater than is usually supposed, there is no question but that much good has been done by this means of inoculating the soil.

A number of years ago a German botanist conceived the idea of bringing about inoculation by the means of pure cultures. This was to be accomplished by isolating from the nodule the right organisms and then transferring to tubes containing a medium which would enable them to multiply rapidly. There was no difficulty in obtaining these pure cultures, and within a short

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time the product was put upon the market under the name of "Nitragin" and sold at the rate of one dollar per bottle, which was sufficient for one-half acre. Numerous experiments abroad, with a few in this country, soon demonstrated that while in some instances Nitragin produced an abundant formation of nodules, there was a vastly greater number of cases where no benefit was obtained.

When this line of investigation was taken up in the Department of Agriculture, the demand for some artificial means of inoculating soil was already sufficiently great to make it desirable, if possible, to increase the bacteria very rapidly and to insure a sufficient quantity of them so that they could be distributed to various parts of the country where it seemed that they were needed. For this reason the means used for propagating them was similar to that of the German botanist; that is, clover or bean, or whatever the plants from which the bacteria originally came, was stewed and to this decoction were added sugar, peptone and other substances ordinarily used in cultivating bacteria. The result was a medium very rich in nitrogen and the growth obtained was all that could be desired.

At this stage the problem seemed an exceedingly simple one and it was thought that within a short time it would be possible to send out bacteria by the keg, barrel, or any quantity desired. Unfortunately, however, when these organisms were tested in the greenhouse and in the field, it was found that they did not produce nodules. There could be no question about their having been derived from the true nodule-forming organism, but it looked as though they had by some means or other lost the power of infecting the plants upon which it was so desirable to have them produce root nodules. After a little experimenting, it became evident that the manner of growing these bacteria was not one designed to make them efficient nitrogen fixers. When you remember that these organisms reproduce themselves in from thirty to forty-five minutes, you can readily see that if they are at all susceptible to their environment, the tremendous number of generations obtained at the end of a few days enables any slight difference in their efficiency to be transmitted in a most astonishing way; and that, although one started with an organism

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capable of producing nodules and fixing nitrogen, unless the conditions were exactly right this function might be entirely lost.

Experiments soon proved that this loss of power was the result of growing upon a rich nitrogenous medium. It was as though the bacteria soon discovered that it was easier to get nitrogen out of the substance upon which they were growing than it was to fix it from the air, for it requires a tremendous energy to combine free nitrogen. Consequently, they simply degenerated and became lazy, just as a number of other organisms do under the same circumstances, and so long as they were allowed to grow under such luxurious conditions they refused to perform the beneficial function for which nature intended them. As soon as this fact was thoroughly demonstrated an attempt was made to find some medium which would sustain the life of the bacteria and yet not enable them to degenerate and lose their beneficial power. By transferring the bacteria to a medium made up of chemically pure salts which contained no nitrogen and solidifying with silica jelly, it was possible to obtain colonies which had never had access to nitrogen in a fixed form. These colonies could then be transferred to nutrient solutions devoid of nitrogen, and in this way the beneficial function of combining nitrogen from the air was so augmented that chemical tests proved these organisms to be from seven to ten times as efficient as when they were originally isolated from the nodule.

Of course large numbers of the original bacteria were not able to stand this sudden transition from a comparatively rich nitrogenous medium to one absolutely devoid of this element, but a few million bacteria more or less makes practically no difference. If one organism persisted it was a matter of a very short time when this could be multiplied to any desired quantity. Thus by a process of selection it was possible to obtain a culture which so far as the direct fixation of nitrogen was concerned certainly was very much more efficient than the ordinary wild, nodule-forming organisms.

There is one other important element, however, which must be maintained or increased if these organisms are to produce the best results, and that is their ability to penetrate the root hairs,

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for at present, at least, it does not seem that these bacteria are able to obtain sufficient energy outside of the plant to fix nitrogen in any perceptible quantity. It is probable that they need large amounts of carbohydrates to enable them to carry on their important function, and these, of course, are readily obtained from the roots of the plant. Consequently if they are not able to enter the plant they are of little or no benefit to the soil. The penetrative function of these bacteria is generally restricted to a very small motile form which is seldom found within the root nodule after it has developed to any size.

Growing nodule-forming organisms upon nitrogenous jelly or agar tend to fix the large rod-shaped form which cannot penetrate the root hairs. In fact it is almost impossible after these bacteria have been grown under what would seem to be the most favorable conditions for a considerable length of time, to cause them to break up into the small root-hair penetrating form. On the other hand, bacteria cultivated upon nitrogen-free media, particularly when kept in liquids, readily break up into this small form and thus are able to produce large numbers of nodules filled with bacteria which are at what may be considered their highest state of efficiency.

In order to test the results of these selected methods several acres of different legumes were planted upon the experiment farm near Washington, part of which was inoculated with bacteria grown upon rich nitrogenous media, and part with organisms taken from the same silica jelly agar and thereafter kept growing in solutions absolutely devoid of any fixed nitrogen. The results were very striking indeed. In the case of soy beans some thousands of plants grown in rows and inoculated with bacteria cultivated after the method of Nobbe upon decoctions of soy beans with peptone added failed to show a single nodule; whereas other plants in rows within four feet of these and inoculated with bacteria taken from the same nodule, but grown upon nitrogen-free media, showed an average of from ten to twenty-five nodules per plant. Of course the contrast above ground was equally striking.

It will be impossible for me to read you the great number of favorable reports we have had from practical farmers throughout

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the country who have successfully used these selected bacteria. Of course it was expected that soils which were devoid of any of these organisms would be improved by inoculation, but it was not supposed that where the bacteria already existed and had been producing a fair number of nodules upon the standing crop that the addition of the cultivated form would be of any distinct benefit. Reports demonstrate, however, that in some instances the inoculation with the cultivated forms shows as much difference upon the field as in those places where bacteria had not previously existed, and it seems probable that by following the method so well understood by plant breeders that eventually we may be able to develop an organism which will be available for a number of conditions which at the present time it is not supposed possible to benefit.

Numerous laboratory experiments have seemed to demonstrate that it is impossible for the nodule-forming bacteria to penetrate the roots of legumes after the plants are of any size. For this reason it has always been considered that it was useless to attempt to add the nitrogen-fixing bacteria to a growing crop. However, experience with these cultivated forms seems to indicate that under some circumstances the use of inoculating material upon a standing crop of any age will be beneficial.

I quote some opinions of practical men on the subject as follows: F. G. Short of Fort Atkinson, Wis., writes, "In July the Department sent me a sample of alfalfa bacteria, with directions for application. This was used on a field of alfalfa which had been newly seeded this spring and up to that time had shown a very small growth of yellow, rather stunted plants. I used the bacteria according to directions and can see there is quite a decided change for the better." John C. Lloyd of Utica, Neb., used a culture upon five acres of alfalfa sown three years ago. The result was "ranker growth than before treatment and much heavier crop of hay. Cut three times and could have cut four, but pastured the last crop."

In Hoard's Dairyman for Nov. 11, 1904, an account is given of the treatment of old alfalfa fields with liquid culture applied by means of a street sprinkler. An experimental trial of this method was made by one of the editors of the paper with "very evident

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success." From Levy, Mo., Thomas O. Hudson writes regarding a field of alfalfa planted in 1901 and treated with inoculating material in March, 1904. He says: "Results good. It was sickly and yellow and spindling, and did not do any good until this year. This year it was dark green and thrifty. I think it will be better next year." Another report upon an alfalfa field to which bacteria were added during the fourth year was recently sent by U. J. Hess, North Yakima, Washington, who wrote: "The crop, which had been short, pale, and spindling, took on a darker color and a rank growth and yielded, I think, about three times as much as formerly."

The same results have been noted for clover, H. W. Dunlap, Holland Patent, N. Y., reporting that having more of the liquid culture than could be used for some seed he was inoculating he mixed it with a light loam and spread it upon a part of a field already in clover. The difference in color and size of the plants later on indicated where the soil had been distributed. Mrs. J. A. Wells of Bryn Athyn, Pa., tried watering pea vines a month old, and with undoubted success. John R. Spears of Northwood, N. Y., treated his peas with the culture solution with the exception of one row, after they were two or three inches high, and the decided benefit is indicated by his report of his success. It will thus be seen, that whereas the ordinary wild bacteria of the soil are not able to penetrate the roots of plants of some age, the cultivated, more virulent form has less difficulty in accomplishing this, and, where conditions are favorable, is able to produce nodules which very soon become beneficial to the plant.

In order to test the value of these cultivated bacteria which have been improved by selective methods, it was decided to distribute sufficient material for inoculating an acre or more of ground to a large number of practical farmers throughout the country. This distribution was begun about a year ago and we have already received some three thousand reports giving the results of the experiments. It would be very interesting if I could read you the experience of the men who have used these bacteria, but as some of the reports have already been published and it would take altogether too much time to give you even an abstract of their reports, I can only say that the results have far

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exceeded our expectations, the percentage of success upon all crops, under all conditions, and in every part of the country being over seventy-five per cent. This means that the farmer was able to see a decided difference in the legumes which had been treated with the bacteria distributed by the Department as compared with those grown under ordinary circumstances.

Sometimes the percentages of increase were as much as 500 per cent or more, and in the majority of cases the difference in favor of the inoculated crop was 100 per cent. When it is remembered that all of these experiments were carried on by men who had no other knowledge of the bacteria than that given them in the printed directions accompanying the cultures, that they were not selected in any way, and that oftentimes the region in which they attempted to grow the specific crop was not by any means best adapted for it, I think you will agree with me that the results have been very satisfactory.

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GENERAL DISCUSSION ON FLOWERS.

OPENED BY J. WOODWARD MANNING, READING, MASS.

Saturday, February 25, 1905.

A general discussion on the subject of flowers and their culture was introduced into the course of horticultural lectures today. It was opened by J. Woodward Manning who presented the following paper on

Flowers and Their Seasons.

A review of the more prominent classes of flowering trees, shrubs, and herbs that are commonly used in ornamental planting probably will be of some use in leading one to a more satisfactory selection that will enable a continuance of blooming effect from early spring to the hard frosts of late fall. To do this the shortest possible mention of species must ensue to allow the subject to be covered.

The first warm days of April find the scarlet maple ready to unfold its crimson flower buds, and the spice or Benjamin bush (*Benzoin odoriferum*) is occasionally found in this vicinity in showy colonies aglow with yellow at the same time. The pussy willow has perhaps already passed and the aspen poplar, birches, and alders are filling the air of the swamps and wild woods with their floating pollen from showy catkins. The shad bush is quite ready to burst into bloom in the swamps, and occasional isolated native groups of flowering dogwood are opening their showy flower bracts.

Of introduced trees the cornelian cherry (*Cornus Mas*) is even more showy in its wealth of yellow flowers than the spice bush, and peaches quickly respond to the warmer days. The red bud (*Cercis Canadensis*) is in full bloom by the end of the month and the Hall's magnolia (*Magnolia Halliana*) persists in bloom-

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ing even if its fragrant, pure white flowers do suffer by late frosts.

In shrubs *Spiraea arguta* often blooms with thin snow on the ground. The mezereum in its bright purple and pure white varieties braves several degrees of frost that it may be foremost in the ranks of showy, berry-bearing shrubs. The lily of the valley tree (*Andromeda floribunda*) and its Japanese cousin have been patiently waiting all winter with half-opened buds for an opportunity to display their wealth of bloom, and, with the Cornish heath (*Erica vagans*), are most welcome in their early bloom. Fothergillas, Cydonias or Japan quinces, Japanese hazels (*Corylopsis*), leatherwoods (*Dirca*), golden bells or Forsythias, shrub yellow-roots (*Xanthorrhiza*), Thunberg's spiraeas, and Chinese wistarias all compete with each other to make a glorious show before May overtakes them.

Our native Hepatica or liver-leaf generally leads in herbs, and yet the rivalry for precedence of Claytonias, bloodroot (*Sanguinaria*), wind anemones (*Anemone nemorosa*), squirrel corn, and wake-robins tend to give that peculiar interest to our woodland rambles. In the gardens crested and vernal iris (*Iris cristata* and *I. verna*) are racing. Lungworts (*Mertensia*), alpine rock-cress (*Arabis*), moss pinks (*Phlox subulata*), speedwells (*Veronica*), hardy candytufts (*Iberis*), golden yarrow (*Achillea tomentosa*), the Geneva bugle (*Ajuga Genevensis*), madworts (*Alyssum*), alpine gentians (*Gentiana*), and creeping forget-me-nots (*Omphalodes*) are striving to outdo their country cousins, and trying madly to keep in advance of the oriental and alpine poppies (*Papaver*), the Christmas roses (*Helleborus*), and the English cowslips and polyanthus (*Primulas*). The leopard's bane (*Doronicum*) holds forth its heads, a reminder of the innumerable cousins of the composite family to follow.

In the meantime the innocence of the pastures and meadows (*Houstonia*), while insignificant in size, more than makes up this deficiency by its prolific abundance sufficient to color the landscape. Bulbs, too, have been contributing their share; snowdrops have fought with Siberian squills (*Scilla Sibirica*) and they with Puschkinias from Asia Minor and glory of the snows (*Chionodoxa*), to see which could outstrip the tulips and narcissi. The

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hyacinths with their fastidious requirements have repaid tender care by fragrance and beauty of color and form with symmetrical mien. Winter aconite (*Eranthis*), Pasque-flower (*Anemone Pulsatilla*), and ox-eye (*Adonis*) have already passed their flowering period and are preparing for a summer's rest.

May arrives anxious to outdo her predecessor. She flashes most gorgeous Chinese and Japanese magnolias into a wondrous wealth of bloom, and permeates the air with the fragrance and rare beauty of the sadly overlooked Norway maple. Larches combine brilliant coloring of rather inconspicuous flowers with softest green unfolding foliage. Plums and cherries in great variety tinge the landscape with their inflorescence. Flowering crabs bend beneath their burden of bloom in delicate shadings of crimson, pink, and white. Sheltered snowdrop trees (*Mohrodendron* or *Halesia*) repay this care in their marvelous way, and toward the end of the month thorns in great variety by their prolific abundance of showy white, subtly fragrant flowers give promise of their showy autumn crops of fruits.

Shrubs make a wonderful show in confusing variety; spiraeas, pearl bush (*Exochorda*), Jew's mallows (*Kerria*), Carolina all-spice or calycanthus, golden currants (*Ribes*), bush honeysuckle (*Lonicera*), in great variety, rose acacias (*Robinia hispida*), Himalayan cotoneasters, pink and white flowered, bladder nut (*Staphylea*), Persian lilacs, and Japanese chestnuts (*Xanthoceras*) are vying with the gorgeous hued hybrid azaleas to detract attention from the wildings; but the mayflower (*Epigea repens*), Pinxter flower (*Azalea nudiflora*), and Rhodora hold their own for quiet harmonious beauty, and one cannot choose between the rivals.

Bulbs are in their heyday of beauty; tulips in all their galore of marvelous coloring; the weird Fritillarias startling in their variety of habit and play of color; the white lipped grape hyacinths; the stars of Bethlehems and dog-tooth violets; narcissus, squills, and wake-robins (*Trillium*) are still with us.

Of herbs silvery yarrow (*Achillea argentea*), windflowers (*Anemone*), columbines (*Aquilegia*), thrifts (*Armeria*), daisies of England (*Bellis*), Cerastiums, shooting stars (*Dodecatheon*), mandrakes (*Podophyllum*), Solomon's seal (*Polygonatum*),

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pansies and violets, Primulas and barren-worts (*Epimedium*), lily of the valley, day lilies (*Hemerocallis*), rockets (*Hesperis*), dwarf iris, and creeping phlox each adapted to its own use and presenting possibilities to enliven every portion of one's grounds. Why should we crave the evanescent effect of the tender bedding plants to the exclusion of the above with so much beauty awaiting our effort.

June arrives with its marvelous horse-chestnuts, the tulip tree with its soft-hued flowers, the golden chains or Laburnums, the mountain ash (*Sorbus*), and the late blooming crabs and cherries. The country roadsides are lined with the locust (*Robinia*); lindens, basswoods and limes virtually load the air with the honeyed fragrance of their pale yellow flowers; later in the month the white fringe (*Chionanthus*), small in stature, shows wonderful masses of purest white flowers amidst its rich, dark green foliage. Finally the yellow-wood (*Cladrastis*) adds to its graceful form a marvelous sight of hanging festoons of purest white flowers, and in shrubs azaleas are continuing their wondrous range of color.

Rhododendrons take precedence in the popular appreciation but to those who cannot afford their expense and care there remains abundant material to select from. Lilacs in all their range of color in which such improvement has been attained of late, Weigelas, beautiful in all aspects of foliage or flower and wondrous prolific of bloom, Spiraeas, Deutzias, dogwoods, snowballs, privets in great variety, mock orange or Syringa (*Philadelphus*), deliciously fragrant and of varied kinds. The woods teem with their pendulous, yellow flowered barberries, their dockmackies, arrow-woods, hobble-bushes, and Appalachian teas, all members of a single family, the Viburnums, whose varied wealth of later-berried effects renders them interesting long beyond the flowering period, elders (*Sambucus*) and choke berries (*Aronia* or *Sorbus*), the showy mountain laurel (*Kalmia latifolia*) which will continue to bloom in the deeper woods well into July. Then the roses always associated with June and too numerous in variety and too marvelous in their beauty and fragrance to other than mention. The heather with all its associations is at its best at this time and with other shrubs like the tamarisk, indigo

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shrub, and lead plant carry on their bloom effect into the next month.

Herbs are in their greatest profusion; rose campions (*Agrostemma*); columbines (*Aquilegia*); Astilbes; golden chamomile (*Anthemis*); St. Bruno's lilies (*Anthericum*); milkweeds including the orange butterfly weed (*Asclepias tuberosa*); poppy-mallows (*Callirhoë*); harebells (*Campanula*), in great variety; forget-me-nots (*Myosotis*); lupins (*Lupinus*); the graceful, pendent flowered alum-root (*Heuchera*); violets; speedwells (*Veronica*); tick-seeds or Coreopsis; pinks in their sweet odors and varied colors; foxgloves (*Digitalis*); fleabanes (*Erigeron*); cranesbills (*Geranium*); blanket-flowers or Gaillardias, in wondrous combinations of color; cross-wort (*Crucianellas*); Primulas; evening primroses (*Oenothera*), profuse in their golden shades; spider-worts (*Tradescantia*) and day-lilies (*Hemerocallis*).

Yet the above are but a smattering of the wealth of herbaceous plants for the month of June. Three families have not been mentioned as yet and are surely indispensable. I refer to peonies with their wondrous variety in color, size, and shape, irises in their marvelous range of color, and Pyrethrums which also seem to have reached their limit of improvement. Surely we have much to anticipate in our gardening of the future if improvement is to continue as it has in the past fifty years.

July ushers in the sweet chestnut with its wealth of yellow, clustered flowers showing to advantage against the glossy green foliage. Our landscape gains new interest during its period of bloom. Catalpas, too, are coming into their perfection and rival the horse-chestnut of the previous month in the size, coloring, and abundance of its flowers. Sumacs also are interesting though of more subdued color, and late in the month the Chinese pagoda tree (*Sophora*) produces abundantly very large open panicles of creamy white flowers. Last of all the Japanese varnish tree (*Koelreuteria*) attracts attention with its large showy open panicles of bright yellow flowers contrasting effectively with its richly varnished foliage. In shrubs July is well provided with the dyer's broom (*Genista tinctoria*) which gives the vicinity of Salem and Marblehead distinction in its golden tinge to the land-

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scape; intolerable nuisance to the farmer, but a thing of beauty to the artist.

Our swamps are fragrant with the honeysuckle azalea (*Azalea viscosa*), the sweet pepper-bush (*Clethra alnifolia*), and the cool woods of the north still have the mountain laurel. The shrubby cinquefoil or hardhack (*Potentilla*) is equally effective from the utilitarian and artistic standpoint in the western part of the state. The buttonball (*Cephalanthus*) is showy now and we are to be congratulated that we are commencing to appreciate its midsummer beauty. Our home grounds are happy with their collection of Adam's needles or Yuccas, the white kerria (*Rhodotypos*), bladder sennas (*Colutea*), St. John's-worts (*Hypericum*), sorrel tree (*Oxydendrum*), that old but beautiful dwarf horse-chestnut (*Æsculus parviflora*), and the climbing clematis and honeysuckles. In the flower border the peonies are still making a lingering effect in a vain effort to vanquish its coming rival, the phlox, which from now on till the time of Michaelmas daisies and chrysanthemums will have first place. Japanese irises, however, hold temporary sway with their gorgeous coloring and immense size of bloom. Larkspurs, too, are old and indispensable favorites with their showy spikes of rich, deep hued flowers.

Marshmallows (*Hibiscus*) are now wondrous in the size of their richly colored flowers, and the cardinal-flower (*Lobelia cardinalis*) is most brilliant in its coloring. Of the lesser lights of the garden plume poppies (*bocconia*), bowman's-root (*Gillenia*), chalk-plant (*Gypsophila*), valerian (*Centranthus*), Oswego tea (*Monarda didyma*), giant harebell (*Platycodon*), Dictamnus, and blackberry-lily (*Belemcanda*) are all showy in bright hues of color. Gaillardias still show their varied flowers and Cassia, Anthemis, Asclepias, and Centaurea add their variety. Yellow flowers now become over abundant. Helianthus, Rudbeckias or ox-eye daisies, Coreopsis, and Helenium all bearing yellow flowers in profusion. Fortunately, by carefully selecting color, variety can be obtained from the list above or to it can be added the white or giant daisy (*Pyrethrum uliginosum*), sea hollies (*Eryngium*), Echinops, and speedwells (*Veronica*). The tender plants are now gaining strength to add in varied color of flower and foliage to meet all needs. In bulbs, lilies, Hall's amaryllis

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(*Lycoris squamigera*), are at their best, and in the lilies, at least, give great range in beauty of color and form of flower.

August has few flowering trees, the Aralias standing by themselves in creating a flowering effect at this period. Their huge masses of white flowers show to great advantage against the subtropical foliage. In shrubs the New Jersey tea (*Ceanothus*) is pleasing in its late blooming effect. Clematis vines are showy in their abundant bloom. Hydrangeas, however, are indispensable in their showy effect. Yellow-flowered herbs predominate including sun-flowers (*Helianthus*), and sneezeworts (*Helenium* and *Heliopsis*). There is really ample variety of color, however, in a selection of the false chamomiles (*Boltonia*), plantain lilies (*Funkia*), Eupatoriums, meadow rues (*Thalictrum*), and Kniphofias. Phlox, too, gives a wide range of color and the Michaelmas daisies or asters commence to appear at this time. Stoke's aster (*Stokesia cyanea*) gives a large range in shades of white, purple, and blue flowers in the hybrid forms between the New England, the New York, and other species of this family. The above with Sedums, Veronicas, Lythrums, Saponarias, Lysimachias, and Stachys give us abundant hardy flowers with which to make August a show month of the year in the flower border.

September arrives with but a single notable tree for showy bloom and that requiring care and shelter to obtain results. I refer to that rare and choice loblolly bay (*Gordonia Lasianthus Altamaha*). Probably the specimen plant in the Arnold Arboretum will remain the best of its kind for a long period to come. Its beautifully showy, fragrant white flowers are borne nearly to frost. We do occasionally have second crops of flowers from the white bay (*Magnolia glauca*) that appear in September. In shrubs Baccharis the groundsel tree, Hydrangeas, and the showy sweet pea shrub (*Desmodium* or *Lespedeza Sieboldi*) practically comprise the list. The first with white silky seed vessels that look like flowers, the second with its large showy heads of white blooms, and the last with its immense profusion of rich purple flowers often lasting till hard frost. Phloxes are showing their second bloom if they have not been allowed to go to seed. Asters are in greatest profusion of kinds and in all shades of blue, purple, and of the purest white. Iron weeds (*Vernonia*) are

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showy with their broad heads of deep purple. Blazing stars (*Liatris*) are effective too in their purple shades. In yellow flowers there are plenty of sunflowers yet, and compass-plants (*Silphium*) are in several distinct forms. Gaillardias still persist in blooming, and the goldenrods have been and are still making a brilliant show. The flame-flowers are defying the frost and chrysanthemums are making great promise of bloom provided weather conditions do not become too severe to enable the maturing of the flowers. Leadwort (*Ceratostigma plumbaginoides*) is a carpet of richest blue, and the beautiful Japanese windflower (*Anemone Japonica*) is at its best. *Boltonia latisquama*, too, is still a mass of pale, lavender-blue flowers particularly effective for cutting.

October and November according to the mildness of the season continue the flower effect of September. Chrysanthemums should be at their best as should also the Japanese anemones. In the woods the witch hazel gives a glow of color with its clouds of deep yellow flowers; but flowering time is over and fruiting time is at hand and attention must be diverted to this direction until the scarlet maple commences the round again.

James H. Bowditch, the chairman, remarked that those present must now know just what to plant in their gardens.

Adin A. Hixon stated that the principal thing in gardening was to know the conditions of your soil, and this was necessary in order to know what to plant to get satisfactory results. He said that it was useless to try to grow rhododendrons, for instance, in a light soil with a gravelly subsoil. The Siberian crab would give one as good satisfaction as anything that could be set out.

He was often asked what to set out around seashore cottages, and advised the transplanting of the native ferns, plants and shrubs of the immediate neighborhood. Amidst the ferns he recommended the planting of tuberous begonias which he said were the easiest and cheapest flowers to grow; gladioli also were very effective.

One of the greatest difficulties to be met with in gardening was the trouble with insect pests. This trouble could be largely cured by the plentiful use of soap and water, which he consid-

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ered fully as efficient as many of the higher cost remedies. It would kill two-thirds of all the insect pests of flowers if used in season.

Edward O. Orpet spoke favorably of the use of soap as an insecticide and especially of ivory soap which he said owed its peculiar value for this purpose to the fact that it was made of vegetable oils rather than of animal fat, and that it contained no free alkali. He gave as a formula for its use: one cake to six pails of water. He knew of numerous species of insects that this solution would kill.

Mr. Orpet said he thought that the best results could be obtained in the garden with bulbs and annuals, and that wonderful progress had been made in recent years in the development of desirable annuals. He mentioned especially the asters, Salpiglossis, Schizanthus, and the *Nicotiana Sanderae*, a recent, valuable acquisition.

T. D. Hatfield spoke of planting rhododendrons in gravelly soil, which he managed to fit for these shrubs by putting in an abundance of leaf mold.

Mr. Manning said that with rhododendrons it was not so much a question of soil as it was of exposures; they should be planted in partial shade and protected by wind-breaks. Forty per cent of rhododendrons die from lack of proper conditions, and alternate freezing and thawing cause more destruction than anything else.

Mr. Hixon reiterated a warning not to plant rhododendrons in a gravelly soil.

Mr. Orpet said that gravelly ground was an unsuitable location for rhododendrons, and also if there was lime in the soil they could not be grown. Ericaceous plants generally could not be grown in soil impregnated with lime, which accounted for the fact of the laurel and arbutus being so abundant in some places and not to be found in other localities.

Thaddeus Friend said he was an amateur and had come into the possession of a tract of barren land at Cape Ann, Massachusetts, which he desired to cover with trees, shrubs and flowers at a small expense. The first thing he did was to get rid of the stones abundantly distributed over the surface. This he accomplished by planning a macadamized road through the land, and

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digging up the soil he had dumped the rocks into the excavation.

He then went into the woods and transplanted many native herbaceous plants, trees, and shrubs. The first plant he set out was the common yellow lily with which he was very successful for it increased rapidly and he grew specimens with thirteen blooms and flowers six inches across. He planted snowdrops under the ledges and had them flower February 22. He also had success with the moosewood out of the woods.

Ashes had been referred to as a fertilizer and he believed in it. He had put on his land the proportion of two tons of ashes and one ton of bone and it had made great crops. He grew on it a squash which weighed 97 pounds and corn also did well. He had found a wild rose with very few thorns on the stems which he had transplanted with pleasing results.

In all he had set out 6000 trees, among them 100 Oregon pines, and his knowledge of the subject had come wholly from practice and experience.

Robert Cameron asked Mr. Manning to name the best twelve hardy trees, shrubs, and perennial flowering plants suitable for estates and gardens about Boston.

In response to this request Mr. Manning gave the following lists:

Best Twelve Hardy Trees.

Yellow Wood (*Cladrastis tinctoria*). Unquestionably our most beautiful tree in flower.

Wier's Cut-Leaf Maple. For rapid, graceful growth.

Horse Chestnut (*Æsculus Hippocastanum*).

Rivers' Purple Beech. For its brilliant foliage.

Chinese Magnolia (*Magnolia Soulangeana*). Very effective in early spring.

Pyrus floribunda, var. Hallii. There should be on an estate at least one specimen of the flowering crab.

Catalpa. For its showy bloom in July.

American Elm. There is no tree more graceful.

Norway Maple. For sturdy growth and longevity.

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Pin Oak. An oak should not be left out of the list and there is nothing finer than the pin oak (*Quercus palustris*).

Tulip Tree. This should be one of the twelve.

Varnish Tree (*Koelreuteria paniculata*). This tree although structurally not imposing is valuable on account of its summer flowering habit.

Best Twelve Hardy Shrubs.

Double Flowered Plum (*Prunus triloba*). Our showiest, early flowering plum. April and May. Grows to six or twelve feet.

Golden Bell (*Forsythia Fortuni*). With its wealth of yellow flowers.

Spiraea Van Houttei. A graceful, hardy shrub, bearing dense racemes of white flowers early in the season.

Early Mock Orange (*Philadelphus coronarius*). More graceful than the larger flowered *P. speciosissimus*.

Japanese Snowball (*Viburnum plicatum*). Perhaps a little tender for an unusually severe winter.

Dwarf Horse Chestnut (*Pavia macrostachya*).

Honeysuckle. The honeysuckles are all fine, but considering the berry-bearing effect through to the fall, *Lonicera Morrowii* is perhaps to be chosen.

Russian Rose (*Rosa rugosa*). Its showy fruit hardly less decorative than its large single flower.

Hydrangea (*Hydrangea paniculata*). One must choose here the hardy species rather than those of greater grace or floriferousness.

Thunberg's Barberry. Nothing better for a hedge.

Deutzia gracilis.

Lilac. The best is the Rouen lilac (*Syringa Rothomagensis*).

Best Twelve Perennial Plants.

English Cowslip (*Primula officinalis*). The best old-fashioned perennial for early bloom.

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Speedwell. (*Veronica amethystina*). Some of the early blooming speedwells, as this species, will give a perfect sheet of blue inflorescence early in the season.

Lily of the Valley. Possesses so much merit that it must be included in the list.

Iris. (*Iris Florentina*). The German varieties of iris are preferable.

Yellow Day Lily. (*Hemerocallis flava*).

Larkspur.

Phlox. Varieties can be planted to give flower from April to October.

Peony. The best red is *Paeonia officinalis* and the best double white is *P. festiva maxima.*

Lupine. (*Lupinus polyphyllus*). In early June; but unfortunately does not always retain its perennial habit.

Gaillardia.

Aster. The aster Lady Trevellyn is very recommendable.

Veronica (*Veronica longifolia*).

or

Sunflower. There was none better than the ten-petaled *Helianthus decapetalus.*

Mr. Manning stated that there were three thousand varieties of hardy perennials catalogued by nurserymen and to select twelve of them was a difficult proposition.

Kenneth Finlayson advised the growing of *Spiraea Van Houttei* rather than *S. Thunbergii* which in his experience was not good after three years.

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SOME ASPECTS OF HARDY FLOWER CULTURE.

BY A. HERRINGTON, MADISON, N. J.

Read before the society, March 4, 1905.

Notwithstanding all that has been written in the past about style and design, there is no garden so beautiful as that untrammeled by the application of needless geometry to its plan and planting. A certain formality may be necessary and right about the house, but those who tell us the garden as a whole should be a thing of formal design are enemies to true gardening, not perhaps of wilful intention, but from lack of knowledge or inability to see and appreciate how their much vaunted formality circumscribes or prohibits the possibility of good gardening by limiting us to the use of a few forms and types of vegetation adapted to the formal scheme.

Hence the floral poverty and meagre beauty of too many so-called gardens, wherein no place can be found for the planting of those beautiful flowers that tell the story of the year from the moment the frost relinquishes its grip of the earth till the time when vegetation again goes to its winter rest. In many gardens where place can be found for hosts of beautiful hardy flowers, they are not to be seen there because of the prevalent erroneous notions that the flower garden is a thing apart of itself, a set arrangement of cultivated beds and borders formal or otherwise.

Some attempt is made to display floral beauty, some good results are seen, but so long as our efforts begin and end there we are merely prospecting; we have not discovered the actual mine of floral treasure whose outcroppings are not thus localized.

This is especially true of hardy flowers, and when we come to a right understanding of the subject we ought to find in hardy vegetation the main source of garden embellishment, just as in our permanent plantations we use only hardy trees and shrubs.

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The purpose in view, therefore, is to suggest means and methods of widening the scope of our efforts, to suggest possibilities for growing and enjoying the beauty of more of the vast floral treasures garnered from many temperate parts of the globe, and all these further amplified by the substantial additions to the original types that have been obtained under cultivation.

The flower gardening that is here advocated goes beyond the prim beds and borders, although admitting the propriety and necessity of these in their place. It advocates getting as near to nature as the garden will permit; in other words, doing in many ways what nature does, with a tolerable certainty of good results. It will give us flowers on the hillside, flowers in the valley, flowers in the open sunlight or in the shade, in the grass or in the woodland; in short, it will enable us to have flowers in hundreds of places that surround the home, heretofore only devoid of them by reason of our neglect to plant, and what is perhaps of great importance to many, at a minimun cost of future care and keeping after the original outlay. Let us look for a moment at facts that annually confront us in regard to our methods of planting certain flowers, and then consider other ways of planting the same flowers that are prettier and more permanent. Take for the first example the

Spring flowering bulbs. What a floral host they make! Rich in varied beauty; snowdrop, snowflake Scilla, Chionodoxa, Erythroniums, Anemones, fritillaries, hyacinths, tulips, and daffodils. How do we grow these? Generally in beds and borders, planted with mathematical precision or worked into those spectacular designs for making which we seem to have a special aptitude. The effect is striking, somewhat pleasing, and it may be no better way could be devised for these particular types; but such hyacinths and tulips as we see are florist creations, therefore need cultural care. The error that is commonly made is in supposing or assuming that they adequately represent what is possible with spring bulbs in the garden.

Most of the spring bulbous flowers need no cultivation at all, in the sense in which we understand or apply that word. They are children of nature, wild species, abounding still in grassy meadows or leafy woods. We too can plant them under condi-

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tions of similarity. Snowdrop and crocus, Scillas and dog's-tooth violets are perfectly happy and infinitely more at home planted in association with trees and shrubs. They often perish from disease, if not killed by disturbance in the deeply dug manured border, yet associated with trees and shrubs and left undisturbed they will go on from year to year increasing and multiplying in numbers and beauty. A colony of the beautiful blue *Scilla Sibirica* that comes up each spring may be cited. A few bulbs were planted originally among some *Rosa rugosa* ten years ago, and nothing has been done since but to annually prune the roses. Each spring the Scillas appear and blossom profusely. They have greatly increased, not only by natural multiplication of the bulbs, but the flowers seed, which ripens and germinates, and the offspring grow on and flower in due course. A week or ten days this Scilla picture lasts and they retire to rest beneath a thicket of rose growth unthought of and forgotten, it may be, till they reappear the following year. Does not this suggest a pretty way of having huge colonies of spring bulbs in the garden? Gems of beauty that we commonly ignore because they are not adapted for use in conventional methods of flower gardening. Doubtless, long before a flower has graced the garden in spring you have gone into the woods and worshipped the spring beauty, the hepatica, and the yellow dog's-tooth violet. They need no culture and know no care, and if we wish it in just the same way we can make permanent additions to the interest and beauty of the garden by naturalizing these gems from the woods and meadows of Europe and Asia.

As these early harbingers of spring fade away the floral procession is continued with flowers of greater stature and more striking beauty. Of these let us look for a while at the great group of daffodils. It is essentially a European family, but they need not be strangers to our gardens. The double Von Sion and Emperor and Horsfieldii we sometimes see in beds after the usual fashion. The home of the daffodil is in the grass; in fact, some of the prettiest species refuse to live more than a year or two in cultivated ground, yet in the same garden planted in grass, continue from year to year with proportionate increase. May we not have a grass garden too, and plant therein some of these

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flowers? All that you require is a grassy spot that need not be mown till midsummer. The smallest nook can be prettily adorned and if you have an acre or two to devote to the purpose the possibilities are immense. To stand knee-deep in grass and daffodils in May suggests surely a desirable and delightful aspect of hardy flower gardening, and one that once created will likewise, without further care, increase in extent and beauty year after year. Planting is a simple matter of lifting the sod and underlying soil, dropping in the bulbs and replacing the soil and sod, taking care to plant the groups in a natural or irregular way, as any formality of arrangement in a grass garden would look most inappropriate. Not only the trumpet daffodils, but the graceful star and the lovely poet's narcissus are all amenable to grass planting, while some of the gems like Johnstoni and Queen of Spain can only be permanently established in the grass. Partial shade, if available, will prolong the life of the flowers so that proximity to large trees might be chosen, or a grove of trees not too close to one another might be made a daffodil garden.

A word concerning tulips. The familiar type is that of the garden varieties of which there are hundreds, important spring flowers too, but scattered through Europe and Asia is a score or more of beautiful and most variable species that can be semi-naturalized about the shrubbery and plantations, and, if planted, will bring to the garden new forms and types of tulip beauty.

For example, there is the sweet scented yellow *Tulipa sylvestris* of Great Britain, a charming variety to naturalize; others with branched stems bearing several flowers, novel in appearance to those who only have seen the solitary-flowered, ordinary tulip. *Tulipa proestans* from Bokhara is a fine species with sometimes as many as five flowers, of a bright orange red, on a branched stem 12 to 15 inches high; and *Tulipa Persica* from Persia is another branching tulip with brilliant yellow bronze marked flowers. In all the tulip family, wild or cultivated forms, few can compare in gorgeous beauty to *Tulipa Greigii*, and in the opposite direction what a pretty gem we have in *T. Clusiana*, the lady tulip, its flowers cherry red externally, white internally, most refined in beauty, yet a pure child of nature, disliking rich garden soil, but happy and long-lived in stony ground among roots of trees and

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shrubs. Besides these are many others and if you would take the species and make a tulip garden of them, tulip time would bring you such varied beauty and refinement of form that you would no longer be satisfied, in fact, you would wonder why you had for so long been content with the ordinary garden tulip.

Spring flowering perennial plants. The bulbs, numerous as they are, only comprise a part of spring's contribution to the floral gayety of the earth. Another type of vegetation, of perennial characteristics, offers to the garden a wealth of beautiful material. Alpine flowers we used to call them, and a rockery or rock garden, was considered an essential adjunct, in fact a necessity before attempting their cultivation. Too often they perished from drought or starvation when planted upon ill-constructed rockeries. Many of these gems from the high mountain ranges of the world are just as happy if suitably planted and cared for upon the level ground such as the garden affords. Because they are indigenous to high altitudes it does not follow they must be strangers to gardens. These little gems are there because they are able to exist and raise their tiny heads in a zone where storms allow no life of tree and shrub. In association with trees and shrubs they would perish in the unequal conflict, but with the open sky above them they live and endure continuously — examples of the fitness with which all things are ordered in nature.

From these lowly types of high mountain life we can gather an assemblage of pretty, easily grown plants and make a spring garden of exceeding beauty. Here are some of the important families: Alyssum, Arabis, Aubrietia, Phlox, Sedum, Saxifrage, Sempervivum, Iberis, Epimedium, Silene, Pulmonaria, Primula, Armeria and many others.

To see and enjoy these to the fullest measure we must not be content with them as units, we should have them in hundreds and thousands if room permits. The cushion pink or dwarf phlox is often seen in gardens. It covers the ground with a mossy carpet of perennial verdure, but what a picture in spring when it covers itself with a mantle of white, or rose, or pink, according to variety. This is but one. Suppose you get an association of types allied in needs and characteristics and see what a spring picture can be created therefrom. Some of them are admirable

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for planting in broad masses as a fringe or margin to shrub plantations; may even be used as carpet plants where choice shrubs stand widely apart; but beyond this they justify the making of a special feature, especially where the topography or geological formations permit. Take, for example, a spot overlying rock with rocky outcroppings here and there, but some depth of soil between; it is ideal for the purpose. Again, upon hundreds of places there yet remain those boulder reminders of the glacial epoch. These can be brought into use and help in forming a rock garden that will be satisfactory, a delight instead of an eyesore.

Instead of piling rocks high in heaps with the interstices filled with soil that is too often dry as dust, an altogether inadequate method for a country of great summer heat and limited rainfall, these same stones may be used to assist in correcting or ameliorating adverse conditions of climate. Doubtless, you have often placed your hand upon a rock or stone on a hot summer day and noted its absorbency of heat. Lift a rock or stone on a hot day and place your hand on the ground where it rested and note how cool the ground is in comparison, not only with the rock but with the surrounding bare earth. In like manner rocks may be made of assistance in growing some of these choice spring flowers even upon level ground, some of the smaller ones lying on the surface; others, larger, buried one-half or two-thirds, furnishing protection and a cool root run to the plants clustered about them. Rock gardens have been failures because the rocks were in excess or misused, but the proper use of them in bed or border or on a sunny slope subordinated to the purpose in view, as aids to cultivation, opens the way to the creating of a garden feature of permanent interest and perennial charm.

Late spring and early summer flowers. The continuing of the floral procession brings next to view the taller plants with larger flowers, and a veritable host is at our command.

How can we marshal such a force? How can we hold an adequate review of Flora's army within the limits of the average garden? It is not possible. The amassing of a collection of hardy herbaceous plants in a long mixed border is at its best a mere collection of units, yet collections more or less in number mainly

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represent the extent of hardy flower culture. The collection has its place but it cannot be made a strong feature of the garden. If our aim is to create pictures in the garden landscape, effects of color, distinctive features in different parts, selections not collections must be the rule. As soon as we depart from the collective method and take up the selective the availability of hardy flowers for garden decoration is enormously increased. For example, take some special class of plants suited to a chosen spot, both from a cultural standpoint and with relation to effect in the garden landscape. Thoroughly prepare the situation and plant it and you can create a flower feature that will stand for five to ten years with only the ordinary care of keeping free from weeds.

An iris garden. Suppose we decide to make an iris garden. Here is a family worthy of ten times the attention it gets in the ordinary garden, and no matter how much space you have at command, you can plant half an acre or more, if the space justifies so extensive a planting, and yet show difference of variety in every square rod but fitness of association throughout the whole arrangement. Instead of a mixed medley of everything that flowers at iris time, consider irises only and see what the family has available for such planting. You are familiar with them; you will concede irises in point of beauty stand related to all other hardy flowers, as the Cattleyas do to the orchid family, peerless and unsurpassable in form, color, effect, the highest type of attainable flower beauty.

Do you know that you can have an iris garden that will give you profuse and unbroken succession of loveliness from April well on into July, and that too without using the family in its entirety, as some types, like the cushion irises and the bulbous class, need separate special treatment. You must have seen some of our meadows blue with native iris in groups of an acre or more, a fine display at flowering time but of one species only.

In the iris garden we can have an early beginning, a continuous succession, and a late ending. An appropriate setting to, and background for, an iris garden is a belt or plantation of shrubs, planting the irises in bold groups in well-prepared soil in the foreground. The dwarf growers are the early bloomers, and height of growth and time of flowering are in such perfect harmony there need be nothing incongruous in the arrangement.

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As a margin to the grouping we have the choice of several species, each in variety, some of them commencing to bloom in April, even before frost has entirely left us, as in *Iris pumila.* This, as the name implies, is dwarf, attains a height of only eight or ten inches, yet flowers with equal profusion to those that succeed it. In color its varieties are white, pale yellow, violet, purple, and the most exquisite of all the sky blue form named *coerulea.*

Iris Olbiensis is the type of a similar dwarf group, its best varieties being *grandiflora*, deep violet purple; *pallida*, creamy white, *sulphurea grandiflora*, yellow; and Socrates, rich purple. *Iris Chamaeiris* is another dwarf group embracing nearly a dozen varieties in shades of yellow, blue, and purple. These are all plentiful and cheap and unquestionably hardy as they come from the Crimean country. Next in succession come the tall bearded flag irises. Of these there are hundreds of varieties in cultivation, as variable as they are pretty, so there is no dearth of choice. They have been classified into groups and of these the Germanica group flowers first in May. The common blue needs no special mention but besides it there is a white form and *atropurpurea*, deep purple, *macrantha*, a giant deep blue-flowered species and Purple King. In June the whole family of bearded irises is with us forming six distinct groups and every group replete with handsome varieties. Taking first the Amoena section; in this the standards or upright petals are white, but the falls or drooping petals vary from white to purple, according to kind. A selection must begin with Victorine, an old but still one of the most charming varieties, Mrs. H. Darwin, and Thorbeck, with a dozen more in existence to amplify the group if space permits. The Pallida section offers some of extreme beauty, in fact it is doubtful if among the hundreds of bearded irises there is one quite as beautiful as *pallida Dalmatica*, its flowers of great size, of a deep clear lavender color, and with a delicious perfume. It should be planted in big bold masses. Celeste is a pretty azure blue, and Queen of May is in a class by itself, so distinct from every other kind, with flowers of a rosy-mauve color, probably as near pink as is obtainable in this type of iris. This is a select trio from a class of at least two dozen.

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The Neglecta section is characterized by varieties having standards ranging from lavender to deep purple, and is equally numerous in variety. In this belongs the pretty Cottage Maid, Fairy Queen, and Perfection. This last is especially handsome, having light blue standards and deep violet falls. The Plicata section is a small one but contains an iris fit for the choicest collection in Mme. Chereau which has white standards and falls, quaintly and prettily marked with horizontal lines of blue, forming a fringe or margin around the edges of the petals. This odd manner of color markings is the distinguishing feature of the group. A very large section is that known as the Squalens, and it embraces an entirely different color scheme, the standards being fawn, or of a bronze or copper hue. Out of nearly a half-hundred to select from special mention must be made of Jacquiniana, a striking beauty, the standards like burnished copper and the falls rich maroon, in appearance and texture like unto velvet. Another great section is the Variegata, in which the standards are always of some shade of yellow, whilst the falls of the various kinds cover the whole range of iris color; Gracchus, Darius, Louis Meyer, and Maori King are a select quartet from this numerous group. Other bearded irises given specific rank are *Florentina*, white and an early bloomer, with varieties, *I. albians* and Princess of Wales, white, large and handsome; *Cypriana* in several varieties in lovely shades of blue; *flavescens*, also varied in yellow tints; and *sambucina* in bronzy hues.

All the irises so far enumerated are in the bearded group. A succession to them in time of flowering is given with another beardless group, rich in species and varieties. Our native irises belong to this group, but they need not be considered, being greatly surpassed in beauty by those from other lands.

An important family that bursts into a blaze of glory after the bearded kinds have faded is the Sibirica group. The typical species *I. Sibirica* grows three feet high, has narrow grassy leaves, and small but exceedingly numerous bright blue flowers. There are a dozen good varieties; one white and one of larger size and great beauty are *orientalis* and George Wallace. *Iris spuria* is another good species, bright lilac-blue, and has several distinct varieties as well, especially that named Celestial. *Iris ochroleuca*

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gigantea is the giant of the family, throwing up its flower stems to a height of nearly six feet, the flowers white and yellow, whilst *I. Monnieri* and *I. aurea* are two pure yellow tall growing species of more than ordinary interest.

Several hybrids, too, between *Monnieri* and *spuria*, classified under the name Monspur are among the best late irises. The iris season finishes with the flowering of the Japanese kinds, forms innumerable and of exceeding variation in the species *laevigata* or *Kaempferi*, and what a glorious climax to the whole. There is no need to describe these, only to say, although semi-aquatic they appear just as much at home right out in the open sunlight in the ordinary soil of the garden, if it is of fair depth, so that we need not be prevented from planting these in the iris garden contiguous to, or commingled with, the many types before enumerated.

The bulbous irises and that quaintly beautiful class to which the mourning iris, *Susiana*, belongs have been intentionally omitted from this suggested iris garden because they call for special treatment and particular choice of situation. Given the right conditions, a striking feature might be made of these alone but not quite as long lasting.

The usual mixed planting of hardy flowers is often made in some more or less obscure spot, for the reason that as the varied subjects pass out of flower the appearance of the border is not of the best. There is nothing detrimental in the aspect of the iris garden as all have good, persistent foliage which alone is not lacking beauty from the time the green spears are thrust upwards in spring till they turn yellow and decay in the fall.

Peonies and lilies, happy in appropriate association, replete in variety, may be suggested for another special extensive planting, a garden of them in fact. The peony needs no eulogium here as it is one of the hardiest and best appreciated of hardy garden flowers, something you can plant and leave alone for a number of years. There is an unlimited choice from which to plant wisely and well. A careful selection of the best should be made, not however forgetting some of the species like the Chinese *albiflora* with its great single, white flowers, as large as a plate, and varieties in other colors that have been raised from it. Other

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single flowered species, natives of Europe and their varieties are important too. The peony season is not a long one. It is shorter than it need be because we have given most attention to the *albiflora* varieties that come in June. The European representatives of the family are May flowering so that starting with these and with a selection of the Chinese peonies following in succession, a properly planted peony garden should be gay with flowers for at least six weeks. Whilst peonies are not averse to the open sunlight, it should be borne in mind that they do remarkably well in the shade, even quite near to large trees, so that a peony garden might be made a great success in a position where an iris garden, if attempted, would be a failure.

Given a generous preparation at the start, you can make a great plantation of peonies with the assurance, that beyond keeping them clean and giving an occasional top dressing, that plantation may remain undisturbed for a period of at least ten years. What a contrast in comparison with the costly, laborious operations pursued in flower gardening as generally practised, involving the entire replanting of large areas certainly once, and if spring flowers are desired, twice a year. Is it any wonder that numbers of people who have gardens forego the costly pleasure of such flower gardening?

With the passing of the peony bloom naught remains for the balance of the year but its own great tufts of luxurious leafage, hence the suggestion to plant lilies with the peonies. To give ample room for development it is essential that we plant our peonies at least a yard apart, as by the time they attain full growth they will completely hide the ground, yet there will be much unoccupied ground beneath or between the great spreading leaves. This is just the condition desired by many lilies. They raise their heads of glorious blossom high in the air — much higher than any peony grows — whilst the peony foliage overspreading and shading the ground furnishes comfort, shelter and protection from burning sun to the lily roots. In this association of peony and lily we have practical adaptability as well as artistic fitness, and the lily family suffices to continue the flowering interest in the garden almost to the end of the garden year. The lily season opens before the peony season has passed, with the

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flowering of *Lilium elegans*. This is a dwarf lily, to be had in a score or more distinct varieties, and as they only grow from one to two feet in height they should be grouped in the immediate foreground of the planting. Next comes the rich orange lily, *L. croceum*, attaining a height of five feet, with the scarlet turk's-cap, *Lilium Chalcedonicum*, the Umbellatum group, the Martagon group, and *Lilium testaceum* — all July flowering kinds. August will bring the tiger lily in several distinct varieties, also *Lilium Henryi*, a giant among lilies, easily grown and gracefully beautiful. Last comes the Speciosum group of lilies as a fitting termination of the long succession. Only the cheap, easily grown lilies have been enumerated. Many others of great interest and beauty might be added, the Auratum group, for example, that would need a little more cultural care and attention.

Summer and autumn perennials. — Numerous other groups of flowers have strong claims for consideration. Suppose you have a good deep fertile soil that will grow good Delphiniums, why not plant a group of a hundred or more. In all Flora's fair family there are none more stately, and what a range of color they present in every conceivable shade of blue. Perhaps your ground is poor and shallow, then take the Yuccas, *filamentosa* and *flaccida*, and plant these in bold broad masses. In New Jersey and doubtless elsewhere there are by the country roadsides great groups of the tawny day lily, *Hemerocallis fulva*, apparently wild; and gorgeous they look with thousands of flowers open at one time on a July day. This is a Chinese plant but the way it has become naturalized would easily lead one into the belief it was a native of our land. Does not this suggest a similar free use of the other species of Hemerocallis in our gardens in association with tree and shrub in a wild, free way? Bocconia, Crambe, Ferula, Echinops, and Polygonum are names that, to those who know the plants that bear them, recall plants of great size and handsome character, too coarse perhaps for the choice collection, but given a place in the tree and shrub plantations they will give the garden another aspect of beautiful, hardy vegetation. As summer verges into autumn other great groups continue the floral story of the year. To cite a few, there are Phlox, Helianthus, Rudbeckia, Helenium, Aster, Kniphofia, and others all worthy of the same bold generous treatment.

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In short, hardy-flower culture presents so many aspects, provides us with material suitable to every kind of soil, condition, and environment, flowers for spring, summer, and fall, in unlimited variety, as to make utterly inexcusable the generally prevalent monotony of so called flower gardening. Instead of practicing universal imitativeness in the display of tender summer flowers, we should make original, adaptive plantings of those that are hardy and permanent, and this we must do with the knowledge that no garden can do justice to them all.

Between planting for beautiful effects and planting for collective interest, or botanical study, a wide gulf exists. It must be admitted that the very much mixed border of hardy flowers that is usually seen where hardy flowers find favor at all, is at its best little more than a botanical collection of living specimens. The true consideration of hardy flowers is governed by their relationship and fitness to all parts of the garden except the roads we walk upon and the essential lawns that we mow.

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THE RETURN TO NATURE.

BY MISS MAUD SUMMERS, CAMBRIDGE, MASS.

Abstract of a lecture delivered before the Society, March 11, 1905.

Truth and beauty are qualities of the universal ideal toward which the growing soul is ever tending. Always, man finds in water, land, and sky the outward expression of his own soul, where alone truth and beauty dwell. In the earliest stage of religion, the gods were friendly, manifesting themselves to their mortal children in blossom and leaf, in the ripening wheat and the golden corn. The loveliest stories of the mythopoetic fancy have to do with the gods whose love of man showed itself in their kindly relations to his interests, as a hunter, a tiller of the soil, a shepherd, or a navigator. The fabled golden age was in truth a reality wherein man's attitude toward nature was one of faith and worship; hence his life was serene and filled with content. He had infinite trust in the fruitfulness of the earth, infinite belief in the beneficence of the spirits that brought life and death, that ensphered the dew for his sake, enriched the grass, fattened the kine, and empurpled the southern slopes of fall with cordial grapes.

At just what period there was born in the race the consciousness that nature was not only not divine, nor trustworthy, nor generous, but cruel, capricious, and tyrannical, history does not and cannot say; but it was inevitable that some such period of disillusion should come, and that when it did come man should change from a worshiper to a doubter, from a confiding child to a bitter accuser, from a joyful co-laborer in the work of the universe, to a drudge earning his bread by the sweat of his brow.

Alas! this has been for the most part the attitude of man from immemorial times, and this same feeling of nature's tyranny and of man's enmity has driven entire populations in days past to seek

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their bread in cities, even as it is driving them from the prairie and the uplands today, to the reeking factory towns and the intolerable tenements. Savage men and women struggled with nature to wrest from her food, clothing, and shelter. In the pastoral stage of civilization men and women worked side by side in the open, in order to force from nature the necessities of life. In the agricultural stage, farming was the chief occupation though the men, in addition, often followed the trades of shoemaker, blacksmith, carpenter, etc., and the women worked in the dairy, cared for the poultry, were the bakers and brewers, the dyers, spinners, and weavers. Both men and women by force of circumstances had eye, ear, and hand fitted to do with precision the task required in order to support life.

We are now in the beginning of another epoch-marking change, for the race in its upward climb is entering the industrial stage of civilization, but the warfare does not cease. Domestic production has given place to factory production, and, in consequence, men, women, and children have left the farm to work in the factories. They are crowding into the cities to live in an environment of brick and mortar, where sordid surroundings too often crush out the impulse toward a higher life. In these early years of industrialism, as in the past, the undeveloped soul of man fails to see in the glories of sunset sky and the blue depths of heaven the joys of existence. The poets have always been seers and throughout the ages have called man's attention to the wealth and prodigality of beauty everywhere in evidence, and have dwelt upon the perfection attainable by man when he should see that "nature is but a name for an effect whose cause is God." In the history of human progress, however, the black and bitter winter of unrest, discontent, and change always heralds the gracious springtime with healing in its wings.

Through this period of eclipse we are passing, but as the rainbow in the ancient story stands eternal in the heavens as a proof that seedtime and harvest shall not fail, so we realize that this return to nature is the visible sign of man's awakened consciousness to right ideals, which exists as an irresistible undercurrent, despite the apparent materialism of the age. This makes every thoughtful person watch with the keenest joy, in this swiftly

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changing time, the breaking away of multitudes from the shackles of an artificial life, to know the way of peace and pleasantness, by living in harmony with nature and true self-expression. This reaching out for right ideals is not confined to America; it is apparent today in the political awakening of Russia and in the religious revival which is stirring the national heart of Wales.

Channing's description of Thoreau will best define a natural life. He says "We may profitably distinguish between that sham egotism which sets itself above all values, and that loyal faith in our instincts on which all sincere living rests. His life was a healthy utterance, a free and vital progress, joyous and serene, and thus proving its value. If he passed by forms that others held, it was because his time and means were invested elsewhere. To do one thing well, to persevere, to accomplish one thing perfectly, was his faith." The recent interest in Thoreau's writings is one of the most hopeful signs of the times, for it bespeaks the fact that men and women see the inner meaning of his life, and in terms of self begin to realize that loyal faith in one's own instincts is the basis of sincere living.

Thoreau's thought deeply impressed Tolstoi and was one of the influences which led him to renounce the ways of the world to live the life of a peasant on his own estate. The application of this principle does not mean that each one of us must slavishly follow Thoreau and live beside Walden Pond, nor lead the life of a Russian peasant. But it does mean that the best test of the worth of character is to apply Thoreau's standards and ask whether the person lives a contented, joyous life, fills his hours agreeably, is useful in his way, and on the whole achieves his purpose. This is what it means to live a free, spontaneous, and natural life as opposed to the artificial one which holds so many in bondage.

The real significance of this return to nature is the recognition that it is a spiritual movement, for it is revealing man to himself. It will lead to far-reaching economic and industrial changes when the public is aroused to an understanding of its deep underlying meaning. All of the various measures advanced to adjust the troubled conditions of labor and capital are good. Each will act and react upon the other until an industrial mechanism is evolved

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that works with automatic perfection. Whether this nicely adjusted instrument produces good or evil results will depend upon the human operators. As are the ideals and ideas of man, so will be the work made manifest. Hence, reformers in all ages have been forced, in the last analysis, to see that human regeneration rests with the individual; that the problem is to substitute unselfish effort in the service of others, for the selfish struggle that seizes everything for one's self.

The settlement of industrial troubles, then, depends largely upon the emphasis placed upon human wealth as opposed to material wealth. As Dr. Henderson so well says, "we need men and women with strong and beautiful bodies, with well-trained heads and hands, with tender and compassionate hearts." If our schools could produce this type of men and women there would be no industrial struggle. Education therefore is the most potent factor in the solution of the problem.

We hear much of the old and the new education. The ideal of the old is external repression; that of the new is internal expression. The difference arises from the emphasis placed upon thought and expression, or, in other words, upon knowledge and character. These functions are inseparable and the struggle today is due to an effort to unite that which should never have been separated. If education be defined as the expansion of consciousness, it is freed from the narrow limitations of the schoolroom and the laboratory and applies to the adult as well as to the child.

In the savage, pastoral, and agricultural stages of civilization, knowledge rested upon experience, instead of being acquired by the indirect method of books. The conditions of life made it impossible to divorce thought and expression. Since the children of today will be the men and women of tomorrow, we must train them to be natural men, with a loyal faith in their instincts, instead of being parrots of other men's thinking. This requires a new educational ideal. The Indian child was taught to use the bow and arrow, to ride the pony, and learned the secrets of the forest. So, too, the little red schoolhouse, sacred to the three R's met the need of the agricultural stage of civilization, because domestic production called forth the activities of the child out of school hours. In this industrial age, both home and business life

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have changed and we cannot escape a corresponding change in the school.

The school of former days was an unpretentious building, located amid unattractive surroundings; the furniture was uncomfortable, the walls and ceilings were black and dingy, the apparatus was inadequate. But oftentimes within this school was found a teacher of mature years, possessed of scholarly instincts, who advised and stimulated his pupils though he did not become a companion and associate. Ian Maclaren's picture of Domsie in "Beside the Bonnie Brier Bush" will for all time stand as an ideal of the common school teacher.

The schoolhouse of today is often an architectural feature of the landscape, with attractive decorations and furnishings, and adequate equipment in the way of blackboards, pictures, globes, etc. In many instances the teachers are young, with an absence of professional training, and too often do for the child that which can only be of service when the child does it for himself. He learns devices when he should be discovering and illustrating truth-compelling principles. The strength of the school of yesterday was the personality of the teacher; the school of today is a well-articulated system that needs the energizing force of an inspired teaching body to direct it unto right ends. The school of tomorrow will subordinate external mechanism and elevate personality to its rightful place as the regenerative, constructive power for which the system exists.

No phase of the return to nature is fraught with deeper meaning than the introduction of nature study into the course of study in our public schools. In its evolution it has passed through the various stages of window boxes, school gardens, the utilization of vacant lots for agricultural purposes, and at last the fundamental idea of the school farm. In many places nature study adheres to the school system as a plaster, to be taken on and off at will. In one school it means birds, in another butterflies, in another blossoms and growing things. Why not include nature study in the more comprehensive word, agriculture, and incorporate this as an integral part of an elementary school training? A plant should be studied in its relation to its surroundings and thus bring out its uses and the general plan. This will lead to an

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observation of its form, structure, buds and blossoms; the insects and birds, their habits and uses. The study of plant life also requires some knowledge of the soil; its formation, kinds, the crops it will produce, etc. In all of this work the great aim of the teacher should be to lead the child to realize that he lives in a world of beauty and that it is an abiding joy to learn to appreciate it. In so doing he becomes a happy, contented member of society.

A few years ago the progressive teacher put window-boxes in her schoolroom in order to relieve the dreary monotony of an artificial environment and give the child some idea of the beauty of growing things. Then came the day of school gardens. These have flourished in Europe for many years, but have only recently been introduced into America. Massachusetts has taken an active part in this development, fostered largely by the recognition of this movement in the way of prizes and diplomas given by the Massachusetts Horticultural Society. An article in The Commons, by Anne Withington, calls attention to the lack of cohesion in municipal life, and cites garden work in Boston as an example. The writer says: "We have a city forester, with a large staff of workers, and all the materials needed at hand — loam, manure, seeds, implements — and yet it is impossible for the city's teachers to obtain these for the city's children. So it comes about that, while the city provides the land and the children and the teachers, it is left to volunteer organizations — The American Park and Outdoor Art Association, The Civic League, and The Twentieth Century Club — to initiate the work and to bear the expense of preparation of the grounds, implements and seeds, and the cost of supervision. Of course the hope is that ultimately the school authorities will assume responsibility for the garden work, and that it will be incorporated in the school curriculum, like other manual work — nay, some of the enthusiasts have larger hopes. They see in the garden a laboratory wherein many branches of learning, now differentiated, may be correlated and vivified for the child. It is with this end in view that teachers have begun to use the garden in teaching English, arithmetic, geography, cooking, sloyd, etc."

In this same article upon school gardens Miss Withington

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furthermore adds: "Boston gardens have, I think, made two distinct contributions to the movement. They have indicated their importance in directing the mind of the city child toward the pleasures and possibilities of country living, and they have established themselves as an integral part of school work, with the opportunity to become increasingly valuable as our ideals come to include an educational alliance between the head and the hand."

Then came a perception of the use of vacant lots. Situated in the heart of a tenement district, the DeWitt Clinton Park of New York City furnishes so fine an example of the school-farm idea that it may be helpful to give some of the details in regard to it. The farm garden for 1903 was a plot 100 feet by 200 feet, divided into areas to accommodate 277 children. A flower bed was maintained in the center, and other beds of flowers for cutting were grown at appropriate points. All of the flowers were thrifty and were grown successfully. The borders were planted with clover, rye, wheat, oats, and buckwheat. The season extended from July 19 to November 1, and the number of children participating was 141 boys and 145 girls. A small building was designated as the farmhouse, and in it young girls were taught household duties, a boy being assigned to the heavier chores. No less than 250 girls assisted in this work. The house was equipped with a stove, cooking utensils, dishes, table linen, and all that was necessary to teach the performance of housework in a neat and economical manner. Each child had an individual garden plot in which seven varieties of vegetables were planted; corn in the center, on either side of this string and butter beans, peas, radishes, turnips, lettuce, and a border of buckwheat around the whole farm. The child's coöperation in preparing the ground was found to be a necessary initiative step, as his hands were not accustomed to handle anything so small and tender as a seed. The promoters of the movement were amazed to find how helpless the children were when it came to doing any work requiring thought and steady hands. A more suggestive tract on the improvement of vacant lots can hardly be found than the one coming from the New York Park Board, entitled "Report of the first children's school farm as originated and conducted by Mrs. Henry Parsons."

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In the West, the school farm as an ideal for secondary schools is being exploited in teachers' meetings and community mass meetings. The idea is so cordially received that no one can doubt its future economic results in directing the attention of young people to the pleasures of country life. An interesting leaflet has recently been issued by the Educational Department of the State of Maine. It is entitled "Standard Schools," and embodies something of this idea in a plan set forth for the improvement of the rural common school. It is supposed that the school will cost more money than a small community can readily raise. Therefore, it is proposed that a community will be selected for the establishment of the school which furnishes the largest special fund, based on the valuation of its real and personal property for taxation. Secondly, the town where the improvement is to be made must provide the school building and a lot of at least three acres in extent. Then a donor or donors must be secured to duplicate the special fund, which is not to exceed $1000.

In other words, it is proposed to secure a small endowment for the school, to be used in the improvement of the building and grounds. The leaflet indicates the kind of building required, and describes the out-of-door surroundings as follows: "A school lot of at least three acres. This area should be divided into plots for forest trees, fruit trees, vegetable and flower gardens, a lawn, playgrounds and necessary drives, walks and paths." The things which such a school may be expected to accomplish are enumerated in an attractive way. The pamphlet has only a dozen printed pages and can be obtained free by writing to Mr. W. W. Stetson, State superintendent of public schools, Augusta, Me.

I have described the plan at length, for it suggests a way for the Massachusetts Horticultural Society to do active, constructive work. Would it not be possible to find a community in Massachusetts ready to raise a "special fund," to be duplicated by this society, to use in the equipment and maintenance of a farm school? The most potent factor in its success or failure would be the personality of the teacher. It would be well to establish one school as a model, and then to maintain the teacher at a fixed salary per year, to go elsewhere to do the same work. He should be a

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teacher, not a lecturer, and should remain long enough in a community to establish the school upon a firm basis. Denmark maintains fifteen of these itinerant teachers, who go from place to place, establishing departments of domestic science. If this society were interested to take the initiative in a movement to equip and maintain one of these schools with one itinerant teacher, it might lead to far-reaching results.

It would be well if the Massachusetts Forestry Association and the Federation of Women's Clubs could be induced to coöperate with the Massachusetts Horticultural Society, not alone for the purpose of sharing the expense, but because these other organizations would prove helpful in disseminating the nature idea. We have only to notice the work they have accomplished in the protection of the trees to see their usefulness and power in the betterment of community life. The devastating gypsy and brown-tail moths have met adversaries bent upon deadly destruction.

Up to this point we have emphasized the economic and socialistic aspects of the question, but the return to nature is destined to serve a far higher and nobler end, namely, to quicken the spiritual life of man. People are beginning to realize that if we would save the poor from his poverty, the weak from his weakness, the public conscience must be aroused to understand what wise men have always known, that "to watch the corn grow and the blossoms set; to draw deep breaths over ploughshare or spade; to read, to think, to love, to hope, to pray—these are the things that make men happy."

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GENERAL DISCUSSION ON VEGETABLES.

OPENED BY WARREN W. RAWSON, ARLINGTON, MASS.

Saturday, March 18, 1905.

In place of the usual Saturday lecture a general discussion of the subject of vegetable culture was held at Horticultural Hall today. The meeting was opened by Hon. Warren W. Rawson, the chairman of the Committee on Vegetables, who spoke in part as follows:

The growing of vegetables has become one of the principal occupations in the vicinity of Boston and other large cities, and many who make a specialty of it are doing quite a large business in that direction. In many ways it is like other kinds of business; it requires large experience and capital and depends more on the man than anything else. In this locality there is probably more done in this line than in any other part of the country. The market is educated up to a high standard and requires the best quality put up in the best manner, and when this is attained good prices are received. The growing in the South affects us very much in regard to the prices obtained for our goods, but their products are not of the best. Their are times when the market is bare and a good price is obtained by those who have the goods on hand. It is a serious question with the vegetable grower today what to grow and when to have it in the market. It used to be the case that our early vegetables in the market brought the best price, but it is not so today; it is the quantity in the market that governs the price.

The seasons and climate have changed very much the past twenty-five years, and for that reason many of our most delicate vegetables have to be grown under glass; therefore, many greenhouses have been erected, and today, by a careful estimate, there

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are nearly 200 acres covered with glass in the state of Massachusetts. The product is not all sold here, but shipped to New York, Philadelphia, Buffalo, and Chicago. There are times when prices are very low, but most of the year they will average well.

The vegetable grower of today would be incomplete in his equipment without a number of greenhouses, that is, enough so that he can run each crop at the proper temperature required. I have never known a vegetable grower who built any houses that did not continue to build and to wish that he had built more when he commenced, and today I am sure that the annual sales of vegetables in the Boston market amount to more than do the sales of fruits, plants, and flowers combined that are raised in Massachusetts.

There is no place in this country or any other where the growing of vegetables has attained the perfection that it has here, and where the products per acre are equal to that of the vicinity of Boston. We have the best market and the best goods and obtain the highest prices obtained in any market. I think the vegetable grower of Massachusetts should be satisfied with his lot; if not with the profit he makes, with the quality he produces. This success has been attained by careful study and application, thorough cultivation, and good judgment.

I will not speak of any special kind of vegetable grown, but will leave the subject open for discussion. We have found that better crops can be grown inside than out, because inside the crop is entirely under your control, while outside it is not and sometimes entirely out of your control, on account of the great changes in temperature and climate. Under glass you can sow, plant, cultivate the soil, transplant and gather the crop at any time and, by him who understands the business, better crops can be grown in shorter time and often at less expense under glass than in the field.

The vegetables shown at our exhibitions are of the finest quality and speak for themselves of the care and cultivation necessary to produce them, and we hope in the near future to double our exhibitions in size and improve in quality. It is by comparison we learn who has the best product, and by comparison we learn many things and get new ideas and new inspiration

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to go home and try and do better next time, no matter if you had the best shown at the last exhibition.

In growing any crop the principal requirements to produce it are air, heat, light, and moisture; the greatest is moisture. Over 70 per cent of moisture is contained in every crop grown. The necessary air in greenhouses is acquired by ventilation. The light is obtained through the glass, or, if the nights are long as they are in winter, the amount of light is increased by the use of arc electric lights over the houses. The temperature is maintained by heated pipes placed in the house at regular distances, and the regulation of heat is attended to through the boiler situated at the lower end of the house. One 60 horse power boiler will heat a house covering one-half an acre of land to a temperature required for lettuce through the winter, and will run the house for cucumbers after March 1st.

There are over seventeen hundred market gardeners who bring vegetables to the Boston market and over twenty-five hundred in the state; and the number is growing larger every year. None of them get rich, but with hard work and economy obtain a good living and have their usual dinner at Thanksgiving, no matter what the price of turkey may be.

The time was when almost any crop of vegetables would pay for growing, but today it is a problem what to grow; and the man must study the market, know how to produce a good crop by the closest attention to details, and confine himself to a few kinds with which he is most familiar and which are best adapted to his soil and market. With the great improvement in machinery and the application of special fertilizers adapted to the requirements of each crop, with the use of greenhouses and the aid of electric light, with the use of various kinds of appliances for the fumigation of crops and of sterilization for the purification of the soil, there is no reason why the market gardener of today cannot grow a perfect crop and of such quality that it will demand a good price at any time it is placed upon the market.

In response to a question as to the value and efficacy of electric light in promoting the growth of vegetables, Mr. Rawson stated

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that he had made use of it for seven or eight years and had found that it improved the quality and increased the production of vegetables grown under glass. He used it mostly on days in which there was a lack of sunshine and in the winter season when the nights were long. He estimated that it increased the growth fifteen per cent and appeared to be of greater benefit to a crop of cucumbers than to lettuce.

Benjamin P. Ware, in referring to Mr. Rawson's assertion that the climatic conditions of eastern Massachusetts had changed during the last half century, asked what evidence he had for such a belief.

Mr. Rawson replied that it is evidence enough when you cannot grow now a crop of cucumbers and melons out of doors. The sudden changes of temperature to which we are liable make it impossible to do it.

Varnum Frost ridiculed the idea of growing vegetables by electricity which he said was against common sense, and was only a "fad" similar to the idea formerly in vogue of painting the glass of a greenhouse red.

He said that success in vegetable growing depended entirely on the condition of the soil. The trouble with many crops today is that the soil is sick with fertilizers. What is needed is virgin soil. You cannot grow a crop of potatoes on old cultivated ground, but plow up a piece of grass land and you will get a good crop.

Samuel H. Warren remarked that Mr. Frost had touched just the right point and gave an instance of the results from plowing up an old huckleberry field that had never been cultivated. Go back to the country he said and take wild land and subdue it and good crops can be got as there were years ago. No fertilizer is so good as virgin soil.

Joshua C. Stone remarked that no one now has virgin soil. What we want to know is, how to make the best of what we have.

John Ward spoke on the subject of changes in the seasons. Changes do occur, but just as great changes took place fifty years ago as now.

George M. Whitaker stated that the Weather Bureau had

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compiled the statistics of a great many seasons, and the tabulated results showed a practical uniformity of weather in the different seasons of New England.

Edward B. Wilder asked what were now considered the best varieties of tomatoes.

Mr. Rawson replied that in Worcester County the Beauty was preferred. For the Boston market the Stone was grown as much as any. The Acme was not much grown now.

In answer to a question as to the best fertilizer for asparagus, Mr. Rawson stated that bone and potash were the best; 1200 pounds to the acre.

In answer to some of the criticisms which had been made on his methods, he replied that in his work it was his practice to look forward and not back, and what he recommended was the result of his experiments and experience. If others did not approve them they were at liberty to use their own methods.

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TRANSACTIONS

OF THE

MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1905

PART II

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND SIX

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Massachusetts Horticultural Society

FOR THE YEAR 1905

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ANNUAL REPORTS FOR THE YEAR 1905.

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1905. PART II.

REPORT OF THE BOARD OF TRUSTEES FOR THE YEAR 1905.

The Board of Trustees of the Massachusetts Horticultural Society presents herewith a summary of the business transacted during the year 1905.

Nine meetings have been held with an average attendance of nine members.

January 7. An appropriation of $400.00, in addition to the income of the French and Farlow Funds, was voted for the library, and an appropriation of $200.00, to include the income of the John Lewis Russell Fund, was voted to the Committee on Lectures and Publication.

The report of the Committee on Prizes and Exhibitions, to which was referred, at the last meeting, the subject of an increase in the compensation of members of the exhibition committees, was presented by Mr. Craig. The committee recommended that the compensation of members of the Committees on Plants and Flowers, Fruits, and Vegetables (chairmen excepted) be fixed as follows:

For the Spring Exhibition, the Rose and Strawberry Exhibition, the September Exhibition, and the Chrysanthemum Exhibition, five dollars for the first day; other days, two dollars a day. For all

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other exhibitions at which prizes are offered, two dollars a day. For other days on which exhibits are made, one dollar a day. These amounts to be paid only to members attending the exhibitions.

The recommendations of the committee were adopted.

An appropriation of $250.00 was voted to the Committee on Prizes and Exhibitions for the arrangement of exhibitions during the current year.

On motion of Mr. Spooner it was voted that the Committee on Gardens be requested to consider the expediency of holding, in the City of Boston, another field demonstration of the subject of insect pests. It was voted also, on motion of Mr. Spooner, that the same committee be requested to consider the matter of offering prizes for the renewal of neglected orchards and to report at some future meeting of the Board.

The following named candidates, having become eligible in accordance with the requirement of the By-laws, were elected to membership in the Society:

George E. Barnard of Ipswich, proposed by A. F. Estabrook,
Henry E. Cobb of Newton, proposed by A. F. Estabrook,
J. Livingston Grandin of Boston, proposed by A. F. Estabrook,
Frederick L. Jack of Boston, proposed by A. F. Estabrook,
J. Morris Meredith of Topsfield, proposed by A. F. Estabrook,
Charles E. Stratton of Boston, proposed by A. F. Estabrook,
E. Everett Holbrook of Holbrook, proposed by A. F. Estabrook,
Frank B. Bemis of Beverly, proposed by A. F. Estabrook,
Thomas D. Blake of Brookline, proposed by A. F. Estabrook,
C. Herbert Watson of Brookline, proposed by A. F. Estabrook,
Walter I. Badger of Cambridge, proposed by A. F. Estabrook,
William Brewster of Concord, proposed by A. F. Estabrook,
Frank E. Peabody of Boston, proposed by A. F. Estabrook,
Edwin S. Webster of Chestnut Hill, proposed by A. F. Estabrook,
Frank G. Webster of Boston, proposed by A. F. Estabrook,
George H. Leonard of Boston, proposed by A. F. Estabrook,
Frank W. Remick of Boston, proposed by A. F. Estabrook,
Laurance J. Webster of Holderness, N. H. proposed by A. F. Estabrook,
Robert Winsor of Weston, proposed by A. F. Estabrook,

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Stedman Buttrick of Concord, proposed by A. F. Estabrook,
Samuel Carr of Boston, proposed by A. F. Estabrook,
Arthur S. Johnson of Boston, proposed by A. F. Estabrook,
Wallace L. Pierce of Boston, proposed by A. F. Estabrook,
Mrs. Ida F. Estabrook of Boston, proposed by A. F. Estabrook,
Wm. Allan Riggs of Jamaica Plain, proposed by J. K. M. L. Farquhar.

February 4. The following vote was adopted:

The Massachusetts Horticultural Society hereby authorizes Arthur Dehon Hill to act on its behalf as legislative counsel at the present session of the Legislature of Massachusetts in all matters pertaining to a certain bill entitled "An Act Relative to the Choosing of the Treasurer and Secretary of the Massachusetts Horticultural Society."

Mr. Hunnewell stated that complaint had been made that the library room was insufficiently heated and presented suggestions from the heating contractors concerning a remedy. It was voted to refer the matter to a committee of three to investigate and report at the next meeting of the Board. The Chairman appointed as the committee Messrs. Farquhar, Pettigrew, and Spooner, and it was voted to add Mr. Hunnewell to the number.

It was voted also that the same committee be requested to investigate the cost of the electric lighting of the building.

The following named candidates were elected to membership in the Society:

William J. Hoyt of Manchester, N. H., proposed by A. F. Estabrook,
Frank A. Day of Newton, proposed by A. F. Estabrook,
Henry B. Day of West Newton, proposed by A. F. Estabrook,
Thomas P. Beal of Boston, proposed by A. F. Estabrook,
Miss Susan White Hardy of Boston, proposed by A. F. Estabrook,
James J. Storrow of Boston, proposed by A. F. Estabrook,
Gardiner M. Lane of Boston, proposed by A. F. Estabrook,
Mrs. Susan E. French of North Easton, proposed by A. F. Estabrook,
David Loring of Boston, proposed by A. F. Estabrook,
James Stuart of Brookline, proposed by James Wheeler.

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April 1. Mr. Hunnewell reported for the committee on heating the library room that the matter had been satisfactorily arranged by means of a damper in the hot-air duct and a pair of swinging doors at the entrance to the room. It was voted to confirm the action of this committee and to appropriate the sums of $55.00 for the work on the hot-air duct and $38.00 for the swinging doors.

A communication was received through the architects, Wheelwright & Haven, concerning the condition of the skylights of the exhibition hall, and it was voted to authorize the Finance Committee to take such action in the matter as may be advisable.

A communication from the President of the National Horticultural Society of France was presented inviting the Massachusetts Horticultural Society to be represented by one or more delegates at the approaching International Horticultural Congress at Paris. It was voted to appoint our Corresponding Member, M. Edouard André, as delegate to represent the Society on that occasion.

On motion of Prof. Sargent it was voted to recommend for corresponding membership in the Society, Messieurs Maurice L. de Vilmorin, Philippe L. de Vilmorin, and James Herbert Veitch.

Arthur D. Hill reported a draft of proposed amendments to the By-laws as follows:

SECTION I to be amended by striking out in the third line of the first paragraph the words "a Treasurer, a Secretary," so that said paragraph shall read as follows:—

The Annual Meeting of the Society for the transaction of business and for the election of officers, namely, a President, two Vice Presidents, a Delegate to the State Board of Agriculture, a Board of Trustees, and a Nominating Committee, shall be held on the second Saturday after the first Monday in November, and the officers elected shall enter upon their duties on the first day of January ensuing.

SECTION VI to be amended by striking out in the first line of the first paragraph the words " elected annually by the Society" and inserting in place thereof the words:— appointed annually by the Board of Trustees for a term of one year beginning on the first day of January ensuing,—so that said paragraph shall read as follows:

The Treasurer shall be appointed annually by the Board of Trustees for a term of one year beginning on the first day of January ensuing, and shall have the following powers and duties: —

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SECTION VII to be amended by striking out at the end of the first sentence the words "elected annually by the Society" and inserting in place thereof the words:— appointed annually by the Board of Trustees for a term of one year beginning on the first day of January ensuing, so that said sentence shall read as follows:

The Secretary shall be appointed annually by the Board of Trustees for a term of one year beginning on the first day of January ensuing.

SECTION IX to be amended by inserting in the first line of the first sentence of clause (6), after the word "appoint," the words:— the Treasurer and Secretary of the Society,—also by striking out in the fourth line of said sentence the word "either" and inserting in place thereof the word:— any,— so that said sentence shall read as follows:

They shall appoint the Treasurer and Secretary of the Society, a Superintendent of the Building, and a Librarian of the Society, and define their duties, except when these are determined by the By-Laws, and may remove them or any of them, and appoint others in their stead, whenever, in their opinion, the interests of the Society shall require it.

SECTION XIV to be amended by inserting at the end of the first sentence of clause (1) the following new sentence:

Said committee shall nominate candidates for all offices which are to be filled by election by the members of the Society.

SECTION XIV to be further amended by inserting in the first line of the first sentence of clause (2), after the word "office," the words:— which is to be filled by election by the members of the Society,— so that said sentence shall read as follows:

Nominations for any office which is to be filled by election by the members of the Society, in addition to those made by the Nominating Committee, may be made by papers signed by fifteen or more members of the Society, and deposited with the Secretary at least two weeks before the Annual Meeting.

The report of Mr. Hill was accepted and it was voted to recommend to the Society at the next annual meeting the adoption of the proposed amendments.

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The following named persons were elected to membership in the Society:

Miss Rose Hollingsworth of Boston, proposed by Robert T. Jackson,
Frank R. Pierson of Tarrytown-on-Hudson, N. Y., proposed by Wm. N. Craig,
Miss Eliza D. Boardman of Boston, proposed by Miss Cora H. Clarke,
Thomas William Head of Groton, Conn., proposed by Wm. P. Rich,
Mrs. Etta Fish Tingley of Greenwood, proposed by Wm. P. Rich,
Mrs. Sallie R. Allen of Medford, proposed by Mrs. E. M. Gill.

May 27. The following memorial notice of the late Warren Fenno, a member of the Board, was read by the Secretary:

It is with feelings of deep regret that the Board of Trustees of the Massachusetts Horticultural Society records the death, on April 27, of its associate member, Warren Fenno of Revere.

For a period of twenty-eight years he has been an active member of this Society, and for twenty-five years has served on the Committee on Fruits, the present year as its chairman.

His critical knowledge freely and faithfully devoted to this important department of the Society's work has been of the greatest value, and he had come to be regarded as a leading authority in the judging and nomenclature of fruits.

His many estimable qualities of character also had won the respect and kindly regard of all who knew him.

It is voted, therefore, to express to the members of his family our sincere sympathy in the loss they have sustained by his death, and to convey to them the assurance of the esteem in which he was held by his associate members of the Board, and their appreciative recognition of his long and valuable service in the interests of this Society.

The memorial was adopted and a copy ordered to be sent to the family of the deceased.

The President declared a vacancy in the office of Trustee occurring through the death of Mr. Fenno, and called for nominations to fill the same in accordance with the provisions of the By-laws.

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Dr. Henry P. Walcott of Cambridge was nominated for Trustee by Mr. Spooner and was elected by a unanimous vote.

Nominations were also called for to fill the vacancy existing in the Committee on Fruits.

Warren H. Heustis of Belmont was nominated by Mr. Spooner, and Wilfrid Wheeler of Concord by Mr. Farquhar. The ballot resulted in the choice of Wilfrid Wheeler who was declared elected chairman of the Committee on Fruits.

A communication was read from John P. R. Sherman, Esq., Executor, conveying to the Society $1000.00, being in full for the legacy payable under the Will of the late John C. Chaffin of Newton.

The conditions of the Will under which the legacy is paid are as follows:

"I give to the Massachusetts Horticultural Society one thousand dollars, the income thereof to be given annually by said Society as a special prize for Hardy Perpetual Roses of unusual merit, according to the impartial judgment and discretion of the prize committee of said Society, but if in any year the exhibit shall not be, in the opinion of the committee, of sufficient merit to deserve the prize, the income for that year, or a portion of it, may be added to the prizes of subsequent years."

It was voted to accept the bequest of Mr. Chaffin and to refer it to the Committee on Prizes and Exhibitions.

On motion of Mr. Craig it was voted to extend an invitation to the American Rose Society to hold its annual meeting and exhibition in connection with the spring exhibition of the Massachusetts Horticultural Society in March, 1906.

The following named persons were elected to membership in the Society:

Clarence A. Backer of Melrose, proposed by Wm. P. Rich,
William Whitman of Brookline, proposed by Wm. P. Rich,
Mrs. Charles P. Greenough of Brookline, proposed by B. Preston Clark,
Miss Margaret White of Cambridge, proposed by Robert T. Jackson,
Sabin Bolton of North Easton, proposed by Oakes Ames,
George Percy Williams of Medfield, proposed by Miss Caroline L. W. French.

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September 9. The following proposed amendments to the By-laws were adopted and referred to the Society for action at the annual meeting in November:

SECTION IX, sub-section 4, on page 12, to be amended by striking out the first sentence thereof and inserting the following:

(4) They shall consider and pass upon all questions of the appropriation of money, including the amounts to be appropriated for prizes and gratuities, and shall, at the annual meeting, report to the Society the amounts they have appropriated for prizes and gratuities during the ensuing year, and also such other appropriations as they think meet for the ensuing year.

SECTION II to be amended by striking out the period at the end thereof and inserting the following:

; provided, however, that the Trustees may appropriate a sum or sums not exceeding seven thousand five hundred dollars in any one year for the purpose of prizes and gratuities.

It was voted to authorize the Committee on Prizes and Exhibitions to publish a preliminary schedule of the Spring Exhibition of March, 1906. On motion of Mr. Spooner it was voted to recommend to the Society at its annual meeting an appropriation of $6700.00 for prizes and gratuities for the year 1906; the division of this amount among the several committees to be made by the Committee on Prizes and Exhibitions.

Mr. Fewkes presented the following motion:

Moved.— That two or more delegates be sent each year to, at least two of the principal exhibitions held in the United States, and one or more delegates be sent once in three years to European exhibitions, and that these delegates shall make a report of such matters as in their opinion will be of interest and value to this Society. And also that these delegates be appointed each year by the Committee on Exhibitions, subject to approval by the Board of Trustees.

It was voted to refer the matter to the Finance Committee.

On motion of Mr. Fewkes it was voted to extend an invitation to the American Peony Society to hold its next annual exhibition in connection with the Peony Exhibition of the Massachusetts Horticultural Society in June, 1906.

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Miss E. Gertrude Woodberry, proposed by A. F. Estabrook, was duly elected a member of the Society.

October 7. A recommendation from the Committee on Prizes and Exhibitions was received favoring an additional appropriation of $300.00 for the Committee on Vegetables for the year 1906. On motion of Prof. Sargent it was voted to refer the matter to the Finance Committee with power.

A communication from Miss Caroline L. W. French was read inclosing a check for $50.00 to be expended for books for the library. It was voted to accept the gift with thanks and to refer it to the Committee on the Library.

It was voted to authorize Mr. Spooner to invite the State Board of Agriculture to hold its winter meeting for 1906 in the halls of this Society.

It was voted also, on motion of Prof. Sargent, to appoint a committee of two to present at a future meeting of the Board a revised schedule of prizes and exhibitions for the year 1907. The chairman appointed as that committee Messrs. Sargent and Farquhar.

On motion of Mr. Manning an additional appropriation of $50.00 was voted for the Committee on Lectures and Publication for the year 1906.

The following named persons were elected to membership in the Society:

Henry W. Dodd of Boston, proposed by A. F. Estabrook,
The Honorable Mrs. G. Duncan of Boston, proposed by Wm. P. Rich.

November 21. A communication from the Society L'Avenir-Horticole was read constituting the Massachusetts Horticultural Society "Société Correspondante." It was voted to accept the communication with expression of thanks for the honor conveyed.

A communication from Henry S. Adams, chairman of the Committee on School Gardens and Native Plants, was presented recommending several changes in that committee. It was voted to change

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the name of the Committee on School Gardens and Native Plants to the Committee on Children's Gardens and to discontinue further exhibitions of children's herbariums and native plants. An appropriation of $150.00 was voted for the Committee on Children's Gardens for the year 1906.

Prof. Sargent, chairman of the committee on the revision of the Schedule of Prizes and Exhibitions for the year 1907, presented the following report:

Your committee asked at a recent meeting to prepare a scheme for a schedule of prizes to be awarded during the year 1907 finds,—

That the number of exhibitions at which an admission is charged can be advantageously reduced by giving one year an exhibition of early spring flowers, like bulbs etc., in March, and the next year, in place of this exhibition, an exhibition about the first week in June for azaleas, rhododendrons, and other plants in perfection at that season, and that the second large exhibition of the year be given in November for chrysanthemums.

That these two important exhibitions of the year should be supplemented by four, one-day, free exhibitions in May, June, and September, the first for narcissi, the second for peonies, the third for roses and strawberries, and the fourth for dahlias.

That all money prizes given at weekly exhibitions during the spring and summer months should be discontinued, and that in place of these exhibitions the Committee on Exhibitions and Awards should meet on every second Saturday from the first of March to the first of November to judge any plants, flowers, fruits, or vegetables that may be brought to the Hall for the recognition or endorsement of the committee, and that the committee should be authorized to expend a certain sum for medals and other forms of endorsement for such exhibits.

That prizes for wild flowers and for children's herbaria should be discontinued as such prizes in no way encourage horticulture; the collection and display of wild flowers being the sphere of a botanical and not of a horticultural society.

That the Committee of Awards should have the right to employ experts as judges, and that nurserymen or florists making exhibits should have the right, under the control of the Committee of Arrangements, to display their trade catalogues in connection with their exhibits.

That horticulture can be made more popular in the state by offering prizes for the gardens of amateurs, that is, persons who do not employ a gardener and do not employ a laborer regularly, and for bunches of the flowers of perennial and annual plants grown by such amateurs and exhibited before the Society; and that a taste for flowers can be further increased

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by prizes for plants grown in window boxes and exhibited before the Society at the end of the summer.

The committee believes that this movement of making horticulture more popular can be further extended by offering small prizes for amateurs through some of the local horticultural societies in different parts of the state, and in this way extend its influence beyond the metropolitan district.

That the best interests of the Society can be obtained by reducing the number of money prizes and increasing the number of medals and certificates, as appears to be the universal custom in European societies.

That in order that exhibitors may have time to prepare their exhibits schedules should be published from twelve to fifteen months before the year in which the prizes are to be awarded.

That prizes might well be offered for essays on practical horticultural subjects, those essays receiving the highest awards to be printed from time to time in the proceedings of the Society.

At the conclusion of his report Prof. Sargent offered the following motion:

Voted, that it is the opinion of the Trustees that the best interests of horticulture in Massachusetts will be served if the Society offers prizes to be given at its exhibitions that will give to these the greatest possible variety and interest; that will encourage the production and cultivation of new plants, fruits, and vegetables; that will call attention to neglected but desirable flowers, fruits, and vegetables; that will develop a taste for flowers among persons who can cultivate their gardens only by their own labor and without the aid of paid gardeners, and that to produce these results the experiment should be tried of increasing the number of medals, plate, and certificates of merit offered by the Society, of increasing the amount of money prizes when money is offered, and of diminishing the number of small money prizes which, while they may have the effect of filling the Hall with exhibits, do little to promote horticulture.

After some discussion of the matter the motion of Prof. Sargent was adopted.

On motion of Mr. Hill the report of the committee on the revision of the schedule of prizes and exhibitions was accepted and the accompanying detailed list of prizes and exhibitions was referred to the Committee on Prizes and Exhibitions for its action and report.

On motion of Prof. Sargent it was voted that the sum of $5500.00 be appropriated for prizes and gratuities to be awarded during the year 1907.

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It was voted also, on motion of Prof. Sargent, that the Committee on Prizes and Exhibitions be requested to report to the Trustees at an early meeting a scheme for the endorsement of new plants, fruits, and vegetables exhibited before this Society.

The following named persons were elected to membership in the Society:

Mrs. Moses Williams of Brookline, proposed by James H. Bowditch,
Charles H. Slade of Belmont, proposed by W. W. Rawson,
Maurice Fuld of Boston, proposed by W. W. Rawson,
Thomas L. Creeley of Belmont, proposed by W. W. Rawson,
John Clark of Watertown, proposed by W. W. Rawson,
Edgar Crosby of Arlington, proposed by W. W. Rawson.

December 2. The following recommendation from the Committee on Prizes and Exhibitions was adopted:

That medals and certificates be delivered immediately after being awarded and that a certain number of medals be kept on hand ready for distribution. That money prizes be paid by check within ten days after the first day of January next succeeding the date of award.

The Committee on Prizes and Exhibitions, to which was referred at the last meeting the proposed schedule for 1907, submitted the following report through its chairman, Mr. Farquhar:

The Committee on Prizes and Exhibitions approves the general plan of the schedule for 1907 but recommends that more encouragement be given to small exhibitors. The committee asks for further time in which to consider the arrangement of details.

The report of the committee was accepted.

The committee on nominations reported a list of committees for the ensuing year as follows:

Finance.— Walter Hunnewell, Chairman, Arthur F. Estabrook, George F. Fabyan.

Library.— Charles S. Sargent, Chairman, T. Otis Fuller, Samuel Henshaw, Charles W. Jenks, John Lawrence, Henry P. Walcott.

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Lectures and Publications.— J. Woodward Manning, Chairman, James H. Bowditch, John A. Pettigrew, Edward B. Wilder, E. W. Wood.

Prizes and Exhibitions.—John K. M. L. Farquhar, Chairman, William N. Craig, Arthur H. Fewkes, Warren W. Rawson, William H. Spooner, Wilfrid Wheeler.

Plants and Flowers,— Arthur H. Fewkes, Chairman, Robert Cameron, William N. Craig, William Nicholson, James Wheeler.

Fruits.— Wilfrid Wheeler, Chairman, Charles F. Curtis, J. Willard Hill.

Vegetables,— Warren W. Rawson, Chairman, William H. Derby, Warren H. Heustis.

Gardens.— Oakes Ames, Chairman, George Barker, William N. Craig, William H. Elliot, Arthur F. Estabrook (*ex officio*), Arthur H. Fewkes, Charles W. Parker, John A. Pettigrew, William P. Rich, Henry P. Walcott.

Children's Gardens.—Henry S. Adams, Chairman, Charles W. Jenks, Harry S. Rand, William E. C. Rich, William P. Rich.

The report of the committee on nominations was accepted and it was voted that the list presented constitute the committees of the Society for the year 1906.

December 9. The following motion of Prof. Sargent, specially referred to this meeting, was taken up for consideration:

Voted, that from the beginning of 1907 the committees on prizes and exhibitions, on plants and flowers, on fruits, and on vegetables, be discontinued, and that in place of these four committees, a committee to be known as the Committee on Exhibitions and Awards, to consist of five members, shall be appointed, and that the Secretary of the Society shall act as the secretary of this committee.

After some discussion of the subject it was voted, on motion of Dr. Walcott, that the motion be laid on the table.

The President called attention to the unsatisfactory condition of the two large storage rooms on the second floor of the Society's building and recommended some changes in the method of handling the exhibition glassware.

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It was voted that the Secretary be authorized to attend to this matter and an appropriation of $300.00 was voted for such expenses as might be incurred.

J. Thomas Butterworth of South Framingham, proposed by William N. Craig, was elected a life member of the Society.

WILLIAM P. RICH,
Secretary.

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REPORT OF THE COMMITTEE ON PRIZES AND EXHIBITIONS FOR THE YEAR 1905.

By John K. M. L. Farquhar, Chairman.

During the year of 1905 the usual exhibitions have been held and they have all shown improvement over those of the preceding year. The growth of public interest in the exhibitions of the Society has been demonstrated by the increased number of paying visitors — an increase of 1141 over last year.

The committee is pleased to note, too, greater enthusiasm among exhibitors and their appreciation of the improved facilities provided by the Society for displaying exhibits. A sufficient supply of glass bottles and vases and better covering material for the tables have been the means of removing inconveniences formerly experienced.

The establishment of a system of entry cards requiring exhibitors to file entries three days previous to the opening of exhibitions has enabled the officers of the Society to allot spaces in advance. The arrangement of the exhibitions on account of these entries has been greatly facilitated and improved.

The committee was again fortunate in securing the services of Mr. Robert Cameron of Cambridge and Mr. James Wheeler of Brookline in laying out the exhibits. The able and tactful manner in which this work has been done has contributed greatly to the success of the exhibitions as well as to promote interest among exhibitors.

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REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS FOR THE YEAR 1905.

By Arthur H. Fewkes, Chairman.

The year 1905 has been an uneventful one in the exhibition of plants and flowers. Although the awards of all kinds for the year exceed those of the previous year by nearly one hundred, the actual number of exhibitors has decreased. In 1904 there were one hundred and forty-seven persons and firms who made exhibits at various times, while in 1905 there were one hundred and forty-three, four less than the previous year.

It must be admitted that the enthusiasm displayed some years ago has been steadily declining, this being particularly noticeable at the large exhibitions in the classes calling for displays of decorative plants. In this connection great credit should be given the Harvard Botanic Garden for the magnificent displays made at different times by Robert Cameron, the superintendent, not only for the excellence of the specimens shown but also for the interest manifested in the success of our exhibitions. In fact if we had not been favored with these displays several of our shows would have been failures, almost, through lack of competition.

The decline of interest has been, perhaps, most apparent in the displays of trained chrysanthemum plants; one by one the prominent growers have dropped out after reaching the goal of first prize, until those who still keep up the race are few indeed.

There seems to be a popular demand for plants grown in a more natural way, having in view the great artistic decorative capabilities of the plant, but it is seldom indeed that the grower develops the artistic sense to the same degree that he does the ability to grow his plants well, and it is extremely doubtful if satisfactory results will be attained in this direction unless some extraordinary means are adopted to secure them.

The chrysanthemum is unique in the position it holds and it practically has no rivals at the time it is at its best. The before

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mentioned decline of interest in it, from the point of view of the public, is largely due to rebellion against a mistaken conception on the part of the grower of what goes to make up a beautiful plant. With this should be recognized the fact that the public is annually satiated by the almost overwhelming displays of chrysanthemum flowers of the finest quality seen on every hand in store windows and on street corners during the chrysanthemum season.

When some genius arises endowed with the necessary artistic skill for arrangement, coupled with the ability to grow the plants in a suitable manner for the purpose, and backed by ample means or sure prospect of very liberal prizes, then we shall have chrysanthemum shows which will be a revelation and stop the cry of monotony and sameness so often heard in connection with these shows.

Here is an opportunity for some individual or individuals, abundantly supplied with this world's goods, to come forward and offer, fully a year in advance, one or more prizes sufficiently large to make it an object for growers to seriously consider the artistic side of the matter and break away from the stereotyped character of these shows as seen today.

With restrictions sufficient to secure the object sought, it would make our chrysanthemum exhibitions educational as well as a paying proposition for the Society.

While there is a decrease of interest in the direction indicated there is an increase in others, notably the carnation, the peony, and the dahlia. Hardy roses barely hold their own although the introduction of the new Rambler class is doing much to keep up the interest. These with the Hybrid Teas and Rugosa hybrids should be given careful attention, for the most important improvements in the rose are being made in these classes.

The February show of carnations has become a very important one both to the grower and the public, for it is at this season that the finest exhibits can be made and at a time when the public is most interested in them.

At the March show the interest seems to be changing considerably and where a few years ago the Dutch bulbs formed the center of attraction, they are now secondary and have given place to such things as orchids, cyclamens, cinerarias, roses, and plants grown for Easter decorations.

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The sweet pea has increased in popularity from year to year and has now reached a point where a special exhibition is necessary to do it justice.

The peony and dahlia, both old-time favorites, but for many years almost forgotten, have through their inherent beauty and worth forced themselves to the front, until our peony shows have eclipsed the rose shows and the dahlia has attained a new beauty which entitles it to the first place in our autumn exhibitions.

A wise course to follow, it seem to us, would be to exploit these flowers to their fullest extent. They are the flowers in which the general public is most interested and which are attracting a corresponding commercial interest. We would include the rose in this category, for although the interest in it seems not to be as pronounced as it was a few years ago, it is only dormant and needs but little to arouse it to its old-time life and energy.

The honorary or special awards for the year have been numerous, but very few of them have been medals and of these none were higher than a Silver Gilt.

The first award of this nature was made on January 21 to W. A. Manda for a natural hybrid Lycaste, apparently between *L. Skinneri* and *L. lasioglossa*. It was interesting from the fact of its natural origin and Honorable Mention was awarded it. He was also awarded Honorable Mention for *Dendrobium nobile alba*. The specimen was a collected plant and bore flowers of a creamy white color with crimson throat. He also showed a fine Cymbidium, *C. Tracyanum*, for which he was awarded a First Class Certificate of Merit.

A new hybrid orchid, Cattleya × Susanæ, shown by E. O. Orpet, was thought worthy of Honorable Mention. It is a cross between *C. Skinneri* and *C. Warneri*.

February 4 Mrs. J. Montgomery Sears was awarded Honorable Mention for a seedling Amaryllis, deep red in color, of fine form and large size.

On February 11 there were several interesting new seedling carnations shown, awards being made them as follows:

To S. J. Goddard a First Class Certificate of Merit for Helen Goddard which had previously been awarded Honorable Mention. This is a beautiful flower of a light cerise-pink color.

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Wm. Palmer of Buffalo, N. Y., was given the same award for Red Lawson, a red sport from the Mrs. Thomas W. Lawson. The color is rather dull but the variety should prove a very useful one as it has all the other good qualities of its parents.

Guttman & Weber again showed their Victory and the flowers were so fine that they were given a Silver Medal for it.

The variety Winsor, raised by Peter Murray and previously awarded Honorable Mention, was again shown by the present owners, the F. R. Pierson Co., and awarded a First Class Certificate. It is a promising variety of a fine light pink color.

The Governor Guild, a new scarlet seedling of considerable promise, was shown by E. N. Pierce & Son, and awarded Honorable Mention.

The variety Mikado, shown by M. A. Patten, was awarded Honorable Mention. It is a large bold flower in the way of Prosperity but marked with a much deeper color and can be considered only in the fancy class.

R. Witterstaetter of Cincinnati, Ohio, exhibited two new seedling carnations, the Aristocrat and Afterglow. They arrived in fine condition and were of beautiful color, fine form, and large size.

The former is a beautiful cerise-pink in color and the latter a shade between this and a red, a very pleasing and unusual color.

They were both awarded First Class Certificates.

Besides the awards for new carnations, J. E. Rothwell was given Honorable Mention for Lælio-cattleya Adolphus, (*L. cinnabarina* × *C. Acklandiæ*) and a First Class Certificate for Lælia Mrs. M. Gratrix, (*L. cinnabarina* × *L. Digbyana*).

A Cultural Certificate was also awarded Wm. C. Rust for a remarkably well-grown specimen of *Dendrobium Ainsworthii.*

March 4 Walter P. Winsor was awarded a Silver Gilt Medal for a remarkable display of Dendrobiums. There were forty plants in the collection and included twenty-five species and varieties, mostly of the Nobile type, and from among them five were selected as varieties not before shown before the Society and worthy of recognition: *D. euryalus* and *D. Dominianum* were awarded Honorable Mention; *D. Ainsworthii roseum,* a very much improved form, D. × Venus, pure white with maroon throat and tips, and *D. nobile Murrhiniacum,* white, suffused soft pink with maroon blotch, were awarded First Class Certificates.

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The F. L. Ames Estate was awarded a First Class Certificate for *Miltonia Bleuana virginalis*, and W. N. Craig a Cultural Certificate for well-grown plants of Phalænopsis.

The Spring Exhibition, March 25–26, was of unusual excellence; the exhibit of the American Rose Society, which held its annual meeting and exhibition in connection with it, contributing much to its success.

The display of forced Rambler roses in pots and tubs probably has never been equalled. There were about sixty plants, principally from M. H. Walsh of Woods Hole, and were nearly all seedlings of his own raising, including the varieties Juniata, Wedding Bells, La Fiamma, Debutante, Sweetheart, Gaiety, Lady Gay, Delight, Hiawatha, Minnehaha, and Babette.

The same exhibitor also made a fine display of forced Hybrid Perpetuals in pots in an attempt to revive the old-time interest in these roses. This collection included among many other kinds several plants of the beautiful new white hybrid perpetual rose Frau Karl Druschki and about twenty plants of his fine seedling Urania. Also an unnamed double white seedling which was awarded Honorable Mention.

Four new carnations were awarded Honorable Mention: Cardinal, exhibited by the Chicago Carnation Co., a fine cardinal-red color; John E. Haines, a promising scarlet variety exhibited by John E. Haines and grown by H. Weber & Son, Oakland Maryland; Fred Burki, a promising white variety exhibited by John Murchie; and Glendale, a white variegated variety, shown by W. J. & M. S. Vesey, Fort Wayne, Ind.

Special awards made for orchids were Honorable Mention to Lager & Hurrell for *Cypripedium glaucophyllum*, a new species from Borneo, with upper sepal green, edged with white, side petals mostly brown and white with hairy edges, and the lip mostly deep rose marked with white near the center; to Morton F. Plant a First Class Certificate for *Phalænopsis amabilis Rimestadtiana*, a beautiful pure white form with lip marked with yellow, and fully twice the size of any other white Phalænopsis; to Julius Roehrs Co., who exhibited a very fine specimen plant of *Cymbidium Lowianum* for which they were awarded a Cultural Certificate; and to E. O. Orpet a Silver Medal for a seedling Cattleya, C. × Olivia, the

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result of a cross between *C. intermedia* and *C. trianæ*. It is a beautiful flower with pure white sepals and petals, bright crimson lip, and white throat.

Other exhibitors receiving special awards were F. R. Pierson Co., who received a First Class Certificate for the new rose, Mad. Norbert Levavasseur, the so-called Baby Rambler, a plant with flowers resembling very closely the old Crimson Rambler, but of a dwarf bushy form and of an exceedingly free-flowering habit.

Wm. Sim, Honorable Mention for new sweet pea, Earliest Sunbeam, a pale yellow variety mostly valuable for its earliness.

Julius Roehrs, Honorable Mention for *Ficus Cannonii*, a species belonging to the same class as *Ficus Parcelli* but with deep purple foliage.

Henry H. Barrows and Son, a First Class Certificate for *Nephrolepis Barrowsi*, a sport from the Pierson fern of much the same character as the Tarrytown fern, but somewhat less finely divided and apparently a better plant.

The Lucius H. Foster Estate, Honorable Mention for Nephrolepis Dorchester, a sport from the Anna Foster fern which bears the same relation to its parent as the Tarrytown fern does to the Pierson fern.

Bayard Thayer, Honorable Mention for a pan of *Phlox divaricata*, showing the beauty of this plant when forced; and to the Misses Eldridge, Norfolk, Conn., for some beautiful sprays of *Bougainvillæa spectabilis*.

April 15 J. E. Rothwell showed two new orchids, *Cattleya Guatemalensis* (*C. Skinneri* × *Epidendrum aurantiacum*) and *Phajus Marthæ*, (*P. Blumei* × *P. tuberculosus*). The former received a First Class Certificate and is a beautiful free-flowering orchid, retaining much of the color of the seed parent but strongly effected in form by the pollen parent. The latter received Honorable Mention and is a large flower in the characteristic brown and yellow shades of the genus, but was not in sufficiently good condition to form a correct opinion of its merits.

April 29 Robert Marshall, gardener to E. W. Converse, was awarded a Cultural Certificate for well-grown plants of *Amaryllis vittata*, and Thomas T. Watt a like award for a fine plant of *Saccolabium ampullaceum* with seven spikes of beautiful rosy purple blooms.

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The new Zanzibar balsam, *Impatiens Holstii*, was shown by Robert Cameron from the Botanic Garden. It is a strong growing species with bright red flowers in the way of *I. Sultani*.

The Rhododendron Show, June 3, was a very successful one, there being several exhibits in most of the classes besides a large number of miscellaneous displays. Among these, as specially instructive and valuable, was the display of flowering trees and shrubs made by the Boston Park Department and arranged by Mr. J. W. Duncan.

Pyrethrums and hardy azaleas were shown in unusually good condition, and tree peonies in greater number than ever before.

The most remarkable of the miscellaneous displays was from Walter Hunnewell who exhibited a magnificent plant of a hybrid *Rhododendron*, var. *lucidum*, grown in a tub. It was in fine condition, fully ten feet in height, and nearly as broad. Mr. T. D. Hatfield, gardener for Mr. Hunnewell, was awarded a Silver Medal for superior cultivation.

A cultural award was also made to Wm. C. Rust, gardener for Dr. C. G. Weld, who received a First Class Certificate for superior cultivation of *Calceolaria rugosa*, Golden Gem. Two plants were shown each nearly three feet in diameter and a complete mass of bloom.

J. E. Rothwell was awarded Honorable Mention for *Cypripedium* × *Lamontianum*, (*C. Calypso* × *C. Rothschildianum*). A large flower but dull in color, the lip being dull crimson and green, the petals striped deep crimson. He was also awarded a First Class Certificate for *Læliocattleya Lycedas*, (*L. tenebrosa* × *C. Schroderæ*). The sepals and petals are brownish crimson, with deep purple crimson lip, and heavily veined throat.

E. O. Orpet was awarded a First Class Certificate for seedling orchid Pacavia (*Lælia tenebrosa* × *Lælia purpurata*). The flowers have brown-crimson sepals and petals, deep crimson lip, and heavily veined white throat.

On account of the lateness of the season the Peony Show, which was set for June 10, was postponed to June 17, and proved a very successful one with good competition in all the classes. The increasing interest in the peony is bringing to the front many beautiful new varieties as well as numerous old ones which though not less beautiful than the new have been too scarce to be generally grown.

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Among the latter we would mention the two flowers which took first and second prize respectively for specimen bloom: Mme. Boulanger, a very large and full flower, glossy soft pink in color; and James Kelway, a very large loosely built flower of a beautiful blush white color. Both were shown by T. C. Thurlow of West Newbury. One of the newer Japanese singles, White Lady, was also shown by him and received a First Class Certificate.

Three new varieties, never before shown here, were exhibited by E. J. Shaylor of Wellesley Hills, viz: M. Martin Cahuzac, a large finely formed, very deep crimson flower, the deepest color known to this section, was awarded Honorable Mention; Germain Bigot, a large flower of a glossy flesh color, shaded salmon; and Mme. D. Treyeran, white, shaded flesh were both awarded First Class Certificates.

The regular annual summer Rose Show was held on June 24–25 and made a fine exhibition. Although this is nominally a rose show there are so many other kinds of flowers and plants shown that the name nearly loses its significance. However there were more roses shown than for several years past, and of better quality.

A few special awards were made, mostly for peonies which were shown quite extensively. J. W. Howard was awarded Honorable Mention for *Salvia Sclarea*, an old species with purple bracts, quite showy, but seldom seen in cultivation.

Geo. Hollis was awarded Honorable Mention for three promising seedling peonies, viz: Number 96, a very full double variety, blush white with satiny lustre, the petals mostly long. Number 60, deep carmine crimson, a large full flower of fine substance and strong stem. Number 95, a large full flower with long petals, deep blush in color, lighter in the center.

The exhibition of July 8, 9 proved a little early for sweet peas, but other seasonable flowers were in great abundance, particularly the exhibits of Delphiniums which made a magnificent show. The display of herbaceous plants from the Mt. Desert Nursery, Bar Harbor, Maine, was an interesting one and included many peony flowers which were just in their prime, showing the difference in season between the two latitudes. About Boston they were entirely gone while these were at their best. The display included a specimen of *Lilium Grayii* never before shown here. It has the habit of *L. Canadense* but is a deep red in color with black spots.

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Honorable Mention was awarded to Jackson Dawson for a seedling rose, Daybreak; it is of the Rambler type, a beautiful blush pink in color, and of large size.

On July 22 Mrs. A. W. Blake showed a specimen plant of the new *Nicotiana Sanderæ*. Cut flowers of this were shown last year by the introducers and a First Class Certificate was awarded them, but it has not proved altogether satisfactory. The plant shown was well grown and was probably presented in as favorable condition as it will ever be shown.

Various opinions have been expressed on the value of this as a bedding plant, mostly adverse, but with some it has proved quite satisfactory planted in partial shade or where it was protected from the sun during the middle of the day. In such locations it makes a fine display, particularly after the weather begins to get somewhat cool in the fall.

August 5 Mr. Julius Heurlin from the Blue Hill Nursery showed two fine hybrid Tritonias or Montbretias as they are commonly called. The varieties were Geo. Davidson, bright yellow, shaded orange, with fine, large well-opened flowers, and Germanica, deep red with yellowish throat, also with large, well-open flowers. A First Class Certificate was awarded each.

The displays of herbaceous plants were very fine, and remarkably good dahlias were shown for so early in the season.

On August 19 there were good displays of phlox, dahlias, and gladioli. John Lewis Childs showed the new gladiolus, America, for which he received a First Class Certificate. It is a pleasing light lavender-pink in color, with violet-crimson blotch, and with a large close spike of bloom.

The exhibition on August 26 was an interesting one and included very fine displays of China asters, herbaceous plants, dahlias and phlox. A particularly interesting display of different species of Viburnum in fruit was made by Mr. Duncan of the Boston Park Department. It filled twenty-six large vases and included the following species: *V. opulus, V. venosum, V. dentatum, V. lantana, V. lentago, V. cassinoides, V. Sargentii, V. dilatatum,* and *V. pubescens.*

The Annual Exhibition, September 14, was a very successful one and there was more or less competition in nearly every class.

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Hardy coniferous trees, a class in which there has been but little interest shown for several years, were well represented and added much to the exhibition.

Competition in the classes for stove and greenhouse plants was not very spirited and had it not been for Mr. Cameron's magnificent group from the Harvard Botanic Garden this class would have been very poorly represented. This without doubt was the finest group ever staged in our halls and Mr. Cameron was awarded a Silver Medal in recognition of the superior skill shown in its arrangement.

The increased popularity of the dahlia has made it of so much importance that in future it will be made the prominent feature of an exhibition which will practically replace the present fall exhibition and be held somewhat earlier so there will be less danger of injury from frosts.

Besides the silver medal before mentioned there were a number of special awards made, mostly for new dahlias. A. E. Johnson of Brockton made an extensive display of seedlings, all of which were of equal quality with existing varieties. Nine of these were selected as quite distinct and each awarded Honorable Mention. Gen. Miles, the only one bearing a name, is a Fancy of a light purple color streaked with crimson. No. 89, a finely quilled Show variety of a delicate white and mauve color. No. 6, a white Decorative variety. No. 10, a fine Show bloom, chrome yellow, shaded orange. No. 2, a Fancy with orange-yellow ground, streaked with crimson. No. 25 a finely quilled Show variety, maroon, tinged crimson. No. 27 a pure yellow Show bloom. No. 75, a Decorative variety with cherry pink petals, tipped with white, and No. 44 a fine sulphur yellow Cactus variety.

E. W. Green was also awarded Honorable Mention for a seedling single dahlia, named Mary Green, with broad rounded petals crimson at the base and tipped with white.

Other special awards made were a First Class Certificate to Henry A. Dreer for *Victoria Trickeri* a remarkable new variety which succeeds at a much lower temperature than the original species.

Honorable Mention was also awarded the same exhibitor for two Nymphæas, *N. Bissetii* and *N. dentata magnifica*; the former,

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a very large deep pink flower, is believed to be a cross of *N. dentata* with *N. Sturtevantii* and is claimed to be a freer grower and bloomer, doing well in a lower temperature. The latter is a fine large white flower, best described as a white *Sturtevantii*. It is a cross between *N. O'Marana* and *N. dentata*.

Alpinia Sanderæ, shown by Julius Roehrs Co., and awarded an Honorable Mention, is a fine foliage plant with distinct white variegation.

A sport from *Sedum spectabile* was shown by Walter Hunnewell, and awarded Honorable Mention. It is a fine deep rose in color, much deeper and richer than the species.

On October 28 a cultural certificate was awarded Mrs. A. W. Blake for a finely grown specimen of *Zygopetalum Mackaii*. It had two bulbs, five spikes of bloom, and thirty-two flowers.

The Chrysanthemum Show, November 9, was fully a week too late and the entries of cut blooms were few in consequence; for with many growers their flowers had passed their best and were unfit to show.

The plants were well grown and in good condition, but there was a lack of interest in competition.

Carnations were remarkably well shown for so early in the season and several new varieties were exhibited; among these Honorable Mention was awarded for the variety Marion Peirce, from Peirce Farm, Topsfield, Mass. The color is a beautiful shade of rose-pink and it is similar in form to the variety Enchantress. The flowers shown showed a tendency towards weak neck, which will, if a constitutional fault, ruin an otherwise beautiful variety.

The same award was made to H. A. Jahn for his No. 111, a promising seedling which seems to combine the good qualities of Enchantress and Fair Maid both in color and habit.

Honorable Mention was awarded also as follows:

To G. B. Anderson for seedling No. 10, a very large and very full flower of a scarlet color but a little dull in shade.

To Backer & Co. for a pink sport from Enchantress of the same form as the latter but of a more rosy color, and for seedling No. 14, a light yellow self of much promise.

To H. A. Stevens Co. for a Daybreak colored sport from the Mrs. T. W. Lawson.

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To Peter Fisher for seedling carnation No. 171, a deep salmon-pink color of fine form.

M. A. Patten again showed Pink Patten which had previously been awarded Honorable Mention, and as the variety seemed to be well fixed it was awarded a First Class Certificate.

Other special awards were a First Class Certificate to Julius Roehrs Co. for *Phoenix Rœbelenii*, a very graceful new palm; an Honorable Mention to Dr. H. P. Walcott for seedling Chrysanthemum No. 1, a fine flower of incurved form and very deep yellow in color.

A Silver Medal was awarded to R. & J. Farquhar & Co. for a display of ornamental evergreens in pots, including many of the most beautiful golden and variegated forms of Retinispora, Thuya, and Biota.

A Silver Medal was also awarded to R. Vincent Jr. & Son, White Marsh, Maryland, for a most comprehensive display of one hundred varieties of hardy Chrysanthemums, mostly of the Pompon class. It proved very interesting and attracted much attention.

December 9 Mr. Oakes Ames showed two new hybrid orchids, *Zygo-Colax Amesianus*, (*Zygopetalum brachypetalum* × *Colax jugosus*). This was introduced by Sander and is intermediate between the two parents; sepals and petals green, spotted and blotched brown, lip white, streaked violet-blue. It was awarded a First Class Certificate.

Cypripedium tonso-Charlesworthii; this is an original seedling and is the result of a cross between *C. tonsum* and *C. Charlesworthii*. It resembles the latter in dorsal sepal while the pouch and petals resemble the other ; the petals, however, are larger than in either parent. A Silver Medal was awarded Mr. Ames for this.

On the same day A. H. Fewkes was awarded a First Class Certificate for a variegated sport from *Stevia serrata compacta*, *Stevia serrata compacta variegata*. The variegation is very distinct giving it a pleasing effect when grown as a flowering plant as well as making it useful as a summer bedding plant. Its dwarf habit makes it more valuable than the old variegated Stevia which is a variety of the ordinary tall form.

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We have awarded during the year in money prizes and gratuities $3399.00

One Society's Silver Gilt Medal	$ 12.25	
Three Appleton " " "	36.75	
Six Society's Silver Medals .	40.50	
One Cultural " " .	6.75	
One Appleton " " . .	6.75	
One " Bronze Medal .	3.75	
Estimated value of above	106.75	106.75
		$3505.75
Appropriation for Plants and Flowers for 1905		3731.00
Amount awarded		3505.75
Unexpended balance		225.25

We have also awarded

Twenty-nine First Class Certificates

Nine Cultural Certificates

Forty-eight Honorable Mentions

Seventeen Votes of Thanks

Besides the above we have awarded the following special prizes,

Henry A. Gane Memorial Fund	35.00
Gardeners' and Florists' Club of Boston . .	40.00
Mrs. Oliver Ames	50.00
Horticulture	10.00
Boston Coöperative Flower Market . . .	38.00
" " Flower Growers' Association	49.00
	$222.00

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PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

1905.

FEBRUARY 4.

Gratuities:—

Mrs. J. Montgomery Sears, *Gardenia florida*, $1.

FEBRUARY 11.

PRIMULA SINENSIS.— Six plants in not less than six-inch pots:
1st, Edward J. Mitton, $5; 2d, Geo. F. Fabyan, $3; 3d, Mrs. John L. Gardner, $2.

PRIMULA STELLATA.— Six plants in not less than six-inch pots:
1st, E. A. Clark, $5; 2d, Mrs. John L. Gardner, $3.

PRIMULA OBCONICA VARIETIES.— Six plants in not less than six-inch pots:
1st, Geo. F. Fabyan, $6; 2d, Geo. F. Fabyan, $3; 3d, Mrs. John L. Gardner, $2.

BEGONIA GLOIRE DE LORRAINE.— Six pots or pans:
1st, Hon. M. T. Stevens, $10; 2d, E. A. Clark, $6.

VIOLETS.— Best bunch, one hundred blooms, Double:
1st, Malcolm Orr, $3; 2d, L. E. Small, $2; 3d, Arthur F. Coolidge, $1.
Best bunch one hundred blooms, Single:
1st, Wm. Sim, $3; 2d, Joseph H. White, $2; 3d, Matthew B. Dallachie, $1.

CARNATIONS.—Best vase, twenty-five blooms, White:
1st, Peter Fisher, $3; 2d, M. A. Patten, $2; 3d, H. A. Stevens Co., $1.
Best vase, twenty-five blooms, Scarlet:
1st, Backer & Co., $3; 2d, C. E. Dickerman, $2.
Best vase, twenty-five blooms, Light Pink:
1st, M. A. Patten, $3; 2d, S. J. Goddard, $2; 3d, H. A. Stevens Co., $1.
Best vase, twenty-five blooms, Dark Pink:
1st, Wm. Nicholson, $3; 2d, L. E. Small, $2; 3d, M. A. Patten, $1.
Best vase, twenty-five blooms, Crimson:
1st, Wm. Nicholson, $3; 2d, M. A. Patten, $2; 3d, Backer & Co., $1.
Best vase, twenty-five blooms, Variegated:
1st, Wm. Nicholson, $3; 2d, M. A. Patten, $2; 3d, Peter Fisher, $1.
Best vase, twenty-five blooms, Yellow:
1st, M. A. Patten, $3; 2d, Backer & Co., $2; 3d, Backer & Co., $1.

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SPECIAL PRIZES OFFERED BY
THE BOSTON COÖPERATIVE FLOWER GROWERS' ASSOCIATION,
NO. 2 PARK ST.

CARNATIONS.— Best vase, fifty blooms, White:
1st, Peter Fisher, $4; 2d, M. A. Patten, $2.
Best vase, fifty blooms, Scarlet:
1st, Peter Fisher, $4.
Best vase, fifty blooms, Light Pink:
1st, Peter Fisher, $4; 2d, S. J. Reuter, $2.
Best vase, fifty blooms, Dark Pink:
1st, Peter Fisher, $4; 2d, S. J. Reuter, $2.
Best vase, fifty blooms, Crimson:
1st, Peter Fisher, $4; 2d, S. J. Reuter, $2.
Best vase, fifty blooms, Variegated:
1st, M. A. Patten, $4; 2d, Peter Fisher, $2.
Best vase, fifty blooms, Yellow:
1st, M. A. Patten, $4.
Best vase, not less than one hundred blooms and not less than six varieties:
1st, Wm. Nicholson, $8.

SPECIAL PRIZES OFFERED BY
THE BOSTON COÖPERATIVE FLOWER MARKET,
MUSIC HALL PLACE,

CARNATIONS.— Best fifty blooms, Fair Maid:
1st, H. A. Stevens Co., $4; 2d, A. Roper, $2.
Best fifty blooms of any White:
1st, C. E. Dickerman, $3; 2d, L. E. Small, $2.
Best seedling, not in commerce:
1st, M. A. Patten, $4; 2d, L. E. Small, $2.
VIOLETS.— Best hundred blooms, Princess of Wales:
1st, Harry F. Woods, $3; 2d, Wm. Sim, $1.
Best hundred blooms, Lady Hume Campbell:
1st, Harry F. Woods, $3; 2d, L. E. Small, $1.
ROSES.—Best twenty-five blooms, any variety other than American Beauty:
1st, Waban Rose Conservatories, $5.
MIGNONETTE.— Best twenty-five spikes of any one variety:
1st, Wm. Nicholson, $3; 2d, A. H. Fewkes, $2.
SWEET PEAS.— Best one hundred spikes of any one variety:
1st, Wm. Sim, $3; 2d, Malcolm Orr, $2.

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SPECIAL PRIZE OFFERED BY HORTICULTURE.

Best vase of Carnations, one hundred blooms in not over three varieties, arranged for effect with other foliage but not with other flowers; color scheme and arrangement considered in making award.
1st, M. A. Patten, $10.

Gratuities: —

John McFarland, Bouquet of Lily of the Valley, $2.
Francis Skinner Jr., Chinese Primroses, $2.
Harvard Botanic Garden, Display of *Primula obconica*, $6.
Harvard Botanic Garden, Display of Lachenalias, $3
A. M. Davenport, Cyclamens, $3.
Mrs. A. W. Blake, *Cypripedium Dautheri*, $1.
Jos. H. White, Carnations, $1.

SPRING EXHIBITION.

MARCH 23, 24, 25, 26.

Theodore Lyman Fund.

INDIAN AZALEAS.— Six distinct named varieties:
1st, E. W. Breed, $15; 2d, Edward MacMulkin, $12.

Society's Prizes.

PALMS.— Pair in pots or tubs:
1st, Mrs. John L. Gardner, $15; 2d, Geo. F. Fabyan, $12.

ORCHIDS.— Three plants:
1st, Geo. F. Fabyan, $10; 2d, Edmund W. Converse, $6; 3d, Edward J. Mitton, $4.

HARD-WOODED GREENHOUSE PLANTS.— Two or more genera, four in bloom, Azaleas excluded:
1st, Ed. A. Clark, $10.

ACACIA.— Specimen plant:
1st, Dr. C. G. Weld, $10; 2d, Dr. C. G. Weld, $6; 3d, E. W. Converse, $4.

CLIMBING ROSE.— Specimen plant in bloom:
1st M. H. Walsh, $10; 2d, Francis Skinner, Jr., $6; 3d, M. H. Walsh, $4.

COLLECTION OF RAMBLER AND OTHER ROSES.— Suitable for landscape and decorative purposes, grown in pots or tubs:
1st, M. H. Walsh, $35; 2d, M. H. Walsh, $25; 3d, M. H. Walsh, $15.

HARDY PRIMROSES AND POLYANTHUSES.— Twelve plants of distinct varieties:
1st, William Whitman, $8; 2d, Mrs. John L. Gardner, $5; 3d, Wm. Whitman, $3.

CYCLAMENS.— Ten plants:
1st, Geo. F. Fabyan, $20; 2d, Edward J. Mitton, $15.

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Ten plants in not over seven-inch pots:
1st, Geo. F. Fabyan, $12; 2d, Dr. C. G. Weld, $8; 3d, Geo. F. Fabyan, $6.

Single plant:
1st, Geo. F. Fabyan, $5; 2d, Edward A. Clark, $4; 3d, E. A. Clark, $3.

CINERARIAS.— Six varieties:
1st, Geo. F. Fabyan, $15.

Three varieties:
1st, Geo. F. Fabyan, $8; 2d, Edmund W. Converse, $6.

CINERARIA STELLATA.— Six plants:
1st, Mrs. John L. Gardner, $12; 2d, Mrs. John L. Gardner, $8.

HYACINTHS.— Twelve named varieties, in pots, one in each pot:
1st, Mrs. John L. Gardner, $10; 2d, Ed. A. Clark, $6; 3d, Bussey Institution, $6.

Six named varieties, in pots, one in each pot:
1st, Ed. A. Clark, $5; 2d, Mrs. John L. Gardner, $4; 3d, Bussey Institution, $3.

Three pans, not to exceed twelve inches, ten bulbs of one variety in each pan:
1st, William Whitman, $10; 2d, Mrs. John L. Gardner, $6; 3d, Ed. A. Clark, $4.

Single pan, not to exceed twelve inches, with ten bulbs of one variety:
1st, Geo. F. Fabyan, $5; 2d, Mrs. John L. Gardner, $4; 3d, Mrs. John L. Gardner, $3.

TULIPS.— Six eight-inch pans, nine bulbs of one variety in each:
1st, Wm. Whitman, $8; 2d, Ed. A. Clark, $6.

Three eight-inch pans, nine bulbs of one variety in each:
1st, Ed. A. Clark, $4; 2d, Wm. Whitman, $3; 3d, Ed. A. Clark, $2.

Three ten-inch pans, twelve bulbs of one variety in each:
1st, William Whitman, $6; 2d, Ed. A. Clark, $5; 3d, Ed. A. Clark, $4.

POLYANTHUS NARCISSUS.— Four eight-inch pots, five bulbs in each:
1st, Mrs. John L. Gardner, $6; 2d, Ed. A. Clark, $4.

JONQUILS.— Six pots or pans, not exceeding eight inches:
1st, Mrs. John L. Gardner, $4; 2d, Wm. Whitman, $3; 3d, Ed. A. Clark, $2.

NARCISSUSES.— Six eight-inch pots or pans, distinct varieties, single or double:
1st, Wm. Whitman, $10; 2d, Mrs. J. L. Gardner, $6; 3d, E. A. Clark, $4.

Three eight-inch pots or pans:
1st, Wm. Whitman, $5; 2d, E. A. Clark, $3; 3d, E. A. Clark, $2.

CROCUSES.— Three ten-inch pans, three distinct varieties:
1st, Bussey Institution, $4.

ROMAN HYACINTHS.— Six eight-inch pans, ten bulbs in a pan:
1st, E. A. Clark, $5; 2d, Wm. Whitman, $3.

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DISPLAY OF EASTER PLANTS.— Bulbous plants, except Easter Lilies and Cyclamens, excluded:
1st, E. A. Clark, $25; 2d, Edward MacMulkin, $15.
GENERAL DISPLAY OF SPRING BULBOUS PLANTS.— All classes:
1st, Bussey Institution, $30; 2d, E. A. Clark, $20.

FLOWERS.

Special Prizes.

Mrs. Anna C. Ames, Boston.

Rose "Mrs. Oliver Ames." Vase of fifty blooms:
1st, W. H. Elliott, $30; 2d, Waban Rose Conservatories, $20.

Gardeners' and Florists' Club of Boston.

Vase of Mixed Roses.— Twenty-five blooms, not less than four varieties:
1st, Col. Chas. Pfaff, $25; 2d, W. H. Elliott, $15.

Society's Prizes.

HYBRID PERPETUAL ROSES.— Twelve blooms, not less than four named varieties:
1st, Col. Chas. Pfaff, $10; 2d, E. A. Clark, $6; 3d, Miss S. B. Fay, $4.
Twelve blooms of Ulrich Brunner:
1st, J. McFarland, $10.
TENDER ROSES IN VASES.— Twelve blooms of American Beauty:
1st, Arthur Griffin, $15; 2d, W. H. Elliott, $12.
Twenty-five blooms of the Bride:
1st, Wm. H. Elliott, $10.
Twenty-five blooms of Bridesmaid:
1st, Wm. H. Elliott, $10.
Twenty-five blooms of Liberty:
1st, Wm. H. Elliott, $12.
Twenty-five blooms of any other variety:
3d, Wm. H. Elliott, $4.
CARNATIONS.— Vase of one-hundred cut blooms, of one variety, with foliage:
1st, F. R. Pierson Co., $10; 2d, Patten & Co., $8; 3d, Peter Fisher, $6.
Twenty-five blooms of any Crimson variety:
1st, Peter Fisher, "Ruby," $5; 2d, Wm. Nicholson, "Harry Fenn," $4; 3d, Patten & Co., "Harry Fenn," $3.
Twenty-five blooms of any Dark Pink variety:
1st, Peter Fisher, "Nelson Fisher," $5; 2d, Patten & Co., "Nelson Fisher," $4; 3d, Wm. Nicholson, "Mrs. T. W. Lawson," $3.
Twenty-five blooms of any Light Pink variety:

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1st, Wm. Nicholson, "Enchantress," $5; 2d, Peter Fisher, "Enchantress," $4; 3d, Patten & Co., "Enchantress," $3.

Twenty-five blooms of any named Scarlet variety:

1st, Guttman & Weber, "Victory" $5; 2d, Peter Fisher, "Flamingo," $4; 3d, F. R. Pierson Co., "Flamingo," $3.

Twenty-five blooms of any named White variety:

1st, Peter Fisher, "Lady Bountiful," $5; 2d, Patten & Co., "Lady Bountiful," $4; 3d, Peter Fisher, "Princess," $3.

Twenty-five blooms of any named Yellow Variegated variety:

1st, Backer & Co., "Eldorado," $5; 2d, Patten & Co., $4; 3d, Backer & Co., $3.

Twenty-five blooms of any named White Variegated variety:

1st, Patten & Co., "Mrs. M. A. Patten," $5; 2d, H. A. Stevens Co., "Mrs. M. A. Patten," $4; 3d, Peter Fisher, "Mrs. M. A. Patten," $3.

PANSIES.— Forty-eight cut blooms, not less than twenty-four varieties:

1st, James Anderson, $3; 2d, Mrs. E. M. Gill, $2.

VIOLETS.— Bunch of one hundred blooms Lady Hume Campbell:

1st, H. F. Woods, $3; 2d, L. E. Small, $2; 3d, E. Bingham, $1.

Bunch of one hundred blooms any other double variety:

1st, F. R. Pierson Co., "Marie Louise," $3; 2d, Norris F. Comley, "Neapolitan," $2.

Bunch of one hundred blooms Princess of Wales:

1st, H. F. Woods, $3.

Bunch of one hundred blooms any other single variety:

1st, Norris F. Comley, "La France," $3.

ORCHIDS.— Display of not less than six genera and fifteen named species and varieties, filling not less than twenty bottles:

1st, Langwater Gardens, Appleton Silver Gilt Medal; 3d, Col. Chas. Pfaff, Appleton Bronze Medal.

Gratuities: —

Edmund W. Converse, Display of Cyclamens, Primulas, etc., $8.
R. & J. Farquhar & Co., Display of Spring Bulbs and Plants, $20.
Bussey Institution, Forced Shrubs and Plants, $15.
Harvard Botanic Garden, Display of *Primula obconica*, Palms, etc., $30.
F. R. Pierson Co., Vase of American Beauty Roses, $5.
The Misses Eldridge, *Bougainvillæa spectabilis* in sprays, $3.
Geo. McWilliam, Cut sprays of *Cymbidium eburneo-Lowianum*, $3.
Lager & Hurrell, Display of Orchids, $10.
Julius Roehrs Co., Display of Orchids, $8.
Edward MacMulkin, Yellow Marguerites, $1.
" " Palms and Bay Trees, $10.
James L. Little, Antirrhinums, $1.
Mrs. E. M. Gill, Display of flowers, $2.
Miss Sarah B. Fay, Hybrid Roses, $2.
Wm. Nicholson, Display of Carnations, $2.

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M. A. Patten, Three vases Carnations, $2.
L. E. Small, Vase of white seedling Carnation, "No. 3," $2.
Guttman & Weber, Vase of Carnation, "Victory," $2.
M. A. Patten, Mignonette, $1.
Carl Jurgens, Vase of Lily of the Valley, $1.
Wm. Sim, Two vases Sweet Peas, $4.
M. H. Walsh, Group of Seedling Rose, "Urania," $8.

APRIL 29.

PLANTS.

INDIAN AZALEAS.— Three plants, distinct varieties, in pots, named:
2d, Geo. F. Fabyan, $8.
CALCEOLARIAS.— Six varieties in pots:
1st, Geo. F. Fabyan, $15; 2d, Geo. F. Fabyan, $10.
PELARGONIUMS.— Six named Show or Fancy varieties:
1st, Geo. F. Fabyan, $10; 2d, Geo. F. Fabyan, $6.

FLOWERS.

TULIPS.— Forty-eight blooms, not less than twelve named varieties:
1st, W. J. Clemson, $5.
HARDY NARCISSUSES.— Collection of fifty vases of not less than ten named varieties:
1st, W. J. Clemson, $10.
PANSIES.— Forty-eight blooms, not less than twenty-four varieties:
1st, Mrs. J. B. Shurtleff, Jr., $3; 2d, Mrs. E. M. Gill, $2.

Gratuities: —

Mrs. E. M. Gill, Display of flowers, $2.
E. W. Converse, Display of Astilbe, $2.

RHODODENDRON EXHIBITION.

JUNE 3 AND 4.

PLANTS.

ORCHIDS.— Display, arranged for effect, with foliage plants:
1st, J. E. Rothwell, Appleton Silver Gilt Medal.

FLOWERS.

H. H. Hunnewell Fund.

RHODODENDRONS.— Twelve distinct varieties, of unquestioned hardiness, named:

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1st, Edward A. Clark, $10.

Six distinct varieties of unquestioned hardiness:

1st, Mrs. J. L. Gardiner, $5; 2d, Blue Hill Nurseries, $3; 3d, W. J. Clemson, $2.

HARDY AZALEAS.— Twelve varieties, one vase of each:

1st, William Whitman, $6; 2d, T. C. Thurlow, $4.

Six varieties, one vase of each:

1st, Mrs. J. L. Gardner, $4; 2d, Mrs. J. L. Gardner, $3; 3d, T. C. Thurlow & Co., $1.

Cluster of trusses, one variety:

1st, William Whitman, $3; 2d, William Whitman, $2.

Society's Prizes.

GERMAN IRISES.— Thirty-six vases of three trusses each, not less than twelve varieties:

1st, William Whitman, $5.

HARDY PYRETHRUMS.— Display of thirty bottles, single and double, six or more varieties:

1st, Mrs. J. L. Gardner, $5; 2, W. L. Clemson, $3.

HARDY ORNAMENTAL TREES AND SHRUBS.— Display of not less than twenty genera and thirty species and varieties, named, cut blooms or foliage:

1st, E. A. Clark, $10; 2d, Mrs. John L. Gardner $6; 3d, W. H. Heustis, $4.

TREE PEONIES.— Not less than five varieties:

1st, Mrs. J. L. Gardner, $10; 2, T. C. Thurlow & Co., $8.

HARDY HERBACEOUS FLOWERS.— Distinct species and varieties, not less than ten genera, grasses admissible, thirty bottles:

1st, Blue Hill Nurseries, $8; 2d, W. J. Clemson, $6.

Gratuities: —

T. C. Thurlow, Peonies and Azaleas, $2.
Edward MacMulkin, Display of Palms and Foliage plants, $15.
W. Whitman, Collection of Pyrethrums, $2.
W. Whitman, Collection of Iris and Sweet Williams, $4.
Mrs. E. M. Gill, Display of Flowers, $3.
Mrs. J. L. Gardner, Display of Rhododendrons, $6.
E. O. Orpet, Vase of *Odontoglossum crispum*, $3.

PEONY EXHIBITION.

JUNE 17.

FLOWERS.

Special prizes offered by Kelway & Son, Langport, England.

HERBACEOUS PEONIES.— Collection of eighteen named varieties, single or double:

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1st, H. A. Stevens Co., Silver Gilt Medal; 2d, Miss A. M. Means, Bronze Medal.

Society's Prizes.

HERBACEOUS PEONIES.— Collection of thirty or more varieties, double:
1st, T. C. Thurlow, $12; 2d, H. A. Stevens Co., $8; 3d, G. Hollis, $6; 4th, Dr. C. S. Minot, $4.

Collection of twelve named varieties, double:
1st, O. B. Hadwen, $6; 2d, G. Hollis, $4.

Specimen bloom:
1st, T. C. Thurlow, "Mad. Boulanger," $2; 2d, T. C. Thurlow, "Lady Alexandra Duff," $1.

Collection of twelve or more named varieties, single:
1st, T. C. Thurlow, $4; 2d, G. Hollis, $3.

Collection of twelve or more named varieties, Japanese single:
1st, G. Hollis, $4.

Vase of blooms on long stems, arranged for effect in the Society's large China vases:
1st, Mrs. J. L. Gardner, $10; 2d, Blue Hill Nurseries, $6; 3d, E. L. Lewis, $4.

Gratuities: —

E. J. Shaylor, Display of named Peonies, $8.
T. C. Thurlow, " " " " $6.
E. A. Clark, " " " " $4.
Mrs. E. M. Gill, Display of Peonies and Hardy Roses, $5.
Wm. Nicholson, Four vases Peonies, $2.
E. A. Wood, Peonies and Oriental Poppies, $3.
W. Heustis & Son, Display of Hardy Shrubs, $2.
Blue Hill Nurseries, Display of Hardy Perennials, $5.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 24 AND 25.

FLOWERS.

SPECIAL PRIZES.

Theodore Lyman Fund.

HARDY ROSES.— Twenty-four distinct named varieties, three of each variety:
1st, Miss S. B. Fay, $25; 2d, Miss S. B. Fay, $20; 3d, W. J. Clemson, $15.

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Society's Prizes.

Twelve named varieties, three of each:
1st, Miss S. B. Fay, $12.
Six named varieties, three of each:
1st, Miss S. B. Fay, $6.
Twenty-four named varieties, one of each:
1st, Miss S. B. Fay, $12.
Eighteen named varieties, one of each:
1st, Miss S. B. Fay, $8; 2d, A. F. Estabrook, $6.
Twelve named varieties, one of each:
2d, Mrs. C. C. Converse and Mrs. Lester Leland, $4.
Six named varieties, one of each:
2d, A. F. Estabrook, $3.
Twenty-four blooms of Mme. Gabrielle Luizet:
1st, Miss S. B. Fay, $6; 2d, A. F. Estabrook, $4.
Six blooms of Alfred Colomb:
3d, Mrs. C. C. Converse and Mrs. Lester Leland, $1.
Six blooms of Baroness Rothschild:
1st, Estate of J. C. Chaffin, $3; 2d, Miss S. B. Fay, $2; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $1.
Six blooms of Mrs. John Laing:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3.
Six blooms of General Jacqueminot:
1st, Miss S. B. Fay, $3.
Six blooms of Ulrich Brunner:
1st, Miss S. B. Fay, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Six blooms of any other variety:
1st, Miss S. B. Fay, "Margaret Dickson," $3; 2d, Miss S. B. Fay, "Mrs. R. G. Sharman Crawford," $2; 3d, W. J. Clemson, "Magna Charta," $1.
Best three blooms of a variety introduced since 1902:
1st, Miss S. B. Fay, "Frau Karl Druschki," $3.
General Display. One hundred bottles of Hardy Roses in the Society's racks, buds admissible:
1st, Miss S. B. Fay, $15; 2d, Mrs. E. M. Gill, $10; 3d, W. J. Clemson, $8. 4th, Estate of J. C. Chaffin, $6.
Sweet Williams.— Display of eighteen vases of three trusses each, not less than six varieties:
1st, W. Whitman, $3; 2d, W. Whitman, $2; 3d, Anthony McLaren, $1.

Gratuities: —

Henry A. Dreer, Display of Aquatics, $8.
R. & J. Farquhar & Co., Display of Palms, $8.
Mrs. E. A. Wilkie, Display of Roses, $2.

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Mrs. Henry L. Foote, Display of Tea and Hybrid Tea Roses, $10.
Mrs. J. L. Gardner, Display of *Campanula Medium*, $6.
M. H. Walsh, Display of Rambler Rose, "Lady Gay," $6.
A. F. Estabrook, Three plants Astilbe, $2.
William Whitman, Herbaceous Plants, $5.
Wm. C. Winter, Display of flowers, $1.
Blue Hill Nurseries, Display of Herbaceous Plants, $6.
E. J. Shaylor, Display of Peonies, $4.
T. C. Thurlow, " " " $6.
A. F. Estabrook, " " " $3.
Mrs. E. M. Gill, " " " $1.
Harvard Botanic Garden, Display of Aquatics, $8.
Mrs. E. M. Gill, Display of Roses, $5.
Dr. C. G. Weld, " " " $5.
Frederic J. Rea, Display of Herbaceous flowers and Roses, $3.

JULY 8 AND 9.

FLOWERS.

HARDY ROSES.— Collection, named, not less than twelve varieties filling fifty vases, one rose in each vase:
1st, Miss S. B. Fay, $12; 2d, E. A. Clark, $8; 3d, Miss S. B. Fay, $4.

IRIS KÆMPFERI.— Collection of varieties filling twenty-five vases:
1st, Mrs. J. L. Gardner, $8; 2d, T. C. Thurlow, $5.

CAMPANULA MEDIUM.— Collection, not less than fifteen vases:
1st, Wm. Whitman, $4; 2d, A. E. Hartshorn, $3; 3d, Wm. Whitman, $2.

DELPHINIUMS.— Display, thirty vases of three spikes each:
1st, Wm. Whitman, $10; 2d, Mrs. J. L. Gardner, $6.

SWEET PEAS.— Display of named varieties filling thirty vases, twenty-five sprays in each, arranged with their own foliage:
1st, Wm. Whitman, $10.

Display of twelve named varieties, twelve sprays of each:
1st, T. C. Sias, $4; 2d, Joseph Thorpe, $3; 3d, Mrs. L. A. Towle, $2.

HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties, not less than ten genera:
1st, Blue Hill Nurseries, $8; 2d, Bay State Nurseries, $6; 3d, F. J. Rea, $4.

Gratuities: —

Blue Hill Nurseries, Display of Herbaceous Plants, $4.
Mrs. J. B. Lawrence, " " " " $2.
Harvard Botanic Garden, " " " " $10.
Mrs. J. B. Lawrence, Crimson Rambler Roses, etc., $1.

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Mrs. E. M. Gill, Display of Flowers, $3.
H. A. Stevens Co., Phlox and Iris, $1.
M. H. Walsh, Display of Rambler Roses, $3.
Mt. Desert Nurseries, Display of Herbaceous Flowers, $10.
F. H. Hills, Display of Delphiniums, $1.
R. & J. Farquhar & Co., Display of Herbaceous Flowers, $3.
Edward MacMulkin, Display of Palms, $5.
F. J. Rea, Display of Rose Dorothy Perkins, $1.

JULY 22.

Gratuities: —

Mrs. E. M. Gill, Display of Flowers, $3.
A. E. Hartshorn, Display of Hollyhocks and Petunias, $5.
T. C. Thurlow, Display of Phlox, $5.
H. A. Stevens Co., " " " $2.
Mrs. L. M. Towle, Display of Sweet Peas, $2.
Harvard Botanic Garden, Display of Aquatics, $8.
" " " " " Achimines, $6.
Mrs. A. W. Blake, Specimen plant of *Nicotiana Sanderæ*, $2.

AUGUST 5.

PERENNIAL PHLOXES.— Twelve named varieties, one truss of each:
2d, H. A. Stevens Co., $6; 3d, Blue Hill Nurseries, $4.
HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties:
1st, Blue Hill Nurseries, $8; 2d, Bay State Nurseries, $6.

Gratuities: —

Joseph Thorpe, Display of Sweet Peas, $2.
Bay State Nurseries, Herbaceous Flowers, $1.
Mrs. E. M. Gill, Display of Flowers, $1.
Blue Hill Nurseries, Display of Herbaceous Flowers, $4.
Mrs. L. M. Towle, Display of Dahlias, $3.
Harvard Botanic Garden, Display of Herbaceous Flowers, $8.

AUGUST 12.

FLOWERS.

ANNUALS.— General display, named, not less than twenty-five varieties, filling not less than one hundred bottles:

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1st, Mrs. J. L. Gardner, $10; 2d, Mrs. E. M. Gill, $8.

Gratuities: —

Harvard Botanic Garden, Display of Herbaceous Plants, $4.
" " " " " Annuals, $6.
Mrs. L. A. Towle, " " " $3.
Blue Hill Nurseries, Display of Phlox, $4.
Mrs. L. M. Towle, Display of Dahlias, $4.
Joseph Thorpe, Asters and Sweet Peas, $1.
W. G. Winsor, Dahlias, $1.

AUGUST 19.

FLOWERS.

PERENNIAL PHLOXES.— General display in not less than thirty vases:
1st, Blue Hill Nurseries, $6; 2d, T. C. Thurlow, $5; 3d, Wm. C. Winter, $3.

GLADIOLI.— Twenty named varieties in spikes:
1st, John Lewis Childs, $5.

Display of named and unnamed varieties, filling one hundred vases:
1st, John Lewis Childs, $8.

Gratuities: —

Harvard Botanic Garden, Display of Herbaceous Plants and Annuals, $8.
Mrs. L. M. Towle, Display of Dahlias, $4.
Wm. C. Winter " " " $2.
Wm. G. Winsor " " " $2.
Mrs. L. M. Towle, Collection of Seedling Dahlias, $1.
Mrs. E. M. Gill, Display of Flowers, $2.
Mrs. J. L. Gardner, *Clerodendron fallax*, $1.

AUGUST 26.

FLOWERS.

Theodore Lyman Fund.

CHINA ASTERS.— Of all classes, fifty vases, not less than twelve varieties, three flowers in each vase:
1st, Mrs. L. M. Towle, $8; 2d, H. B. Watts, $6; 3d, Mrs. J. L. Gardner, $4.

HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties:
1st, Blue Hill Nurseries, $8.

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Gratuities: —

Mrs. E. M. Gill, Display of Flowers, $2.
W. G. Winsor, " " Dahlias, $3.
A. F. Johnson, Seedling Dahlias, $1.
Harvard Botanic Garden, Cut flowers of Tuberous Begonias, $2.
Blue Hill Nurseries, Display of Phlox, $2.
Mrs. J. L. Gardner, Display of Asters, $3.
Harvard Botanic Garden, Display of Asters, $5.
" " " " " Herbaceous Flowers, $8.

SEPTEMBER 2.

Gratuities: —

W. G. Winsor, Display of Asters, $1.
A. E. Johnson, " " Seedling Dahlias, $1.

ANNUAL EXHIBITION.

SEPTEMBER 14, 15, 16, 17.

PLANTS.

H. H. Hunnewell Fund.

HARDY CONIFEROUS TREES.— Display in pots and tubs:
1st, Blue Hill Nurseries, $25; 2d, Blue Hill Nurseries, $10.

PALMS.— Pair in pots or tubs:
1st, Mrs. J. L. Gardner $12; 2d, A. F. Estabrook $10; 3d, E. MacMulkin, $8.

GREENHOUSE PLANTS.— Best finished group containing foliage plants of all descriptions, arranged for effect:
1st, Mrs. J. L. Gardner, $50; 2d, E. MacMulkin, $35.

Six Greenhouse and Stove plants, decorative specimens of different named varieties:
1st, Mrs. J. L. Gardner, $20; 2d, Mrs. J. L. Gardner, $15.

FLOWERING GREENHOUSE PLANT.— Single specimen, named:
1st, Mrs. J. L. Gardner, $8.

CALADIUMS.— Six named varieties:
1st, Mrs. J. L. Gardner, $10.

FERNS.— Five named varieties, no Adiantums admissible:
1st, A. F. Estabrook, $12.

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Specimen other than Tree Fern:
1st, Mrs. J. L. Gardner, $4; 2d, A. F. Estabrook, $3; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.

ADIANTUMS.— Five named species:
1st, A. F. Estabrook, $10.

LYCOPODS.— Four named species:
2d, Mrs. C. C. Converse and Mrs. Lester Leland, $3.

DRACÆNAS.— Six named varieties:
1st, Mrs. J. L. Gardner, $8.

CYCAD.— Single plant, named:
2d, A. F. Estabrook, $6.

BEGONIA REX.— Ten pots of ten varieties:
1st, Mrs. J. L. Gardner, $10.

OUVIRANDRA FENESTRALIS.—
1st, Mrs. J. L. Gardner $6; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $4.

FLOWERS.

DAHLIAS.— Show, eighteen blooms, named varieties:
1st, H. F. Burt, $4; 2d, E. W. Ela, $3; 3d, J. K. Alexander, $2.

Fancy, eighteen blooms, named varieties:
1st, Wm. H. Symonds, $4; 2d, G. D. Cook, $3; 3d, E. W. Ela, $2.

Cactus, eighteen blooms, named varieties:
1st, H. F. Burt, $4; 2d, J. K. Alexander, $3; 3d, E. W. Ela, $2.

Decorative, twelve blooms, named varieties:
1st, E. W. Ela, $3; 2d, H. F. Burt, $2; 3d, R. P. Struthers, $1.

Show, twelve blooms, named varieties:
1st, A. E. Johnson, $3; 2d, J. K. Alexander, $2; 3d, E. W. Ela, $1.

Fancy, twelve blooms, named varieties:
1st, G. D. Cook, $3; 2d, J. H. Flint, $2; 3d, E. W. Ela, $1.

Best single bloom, of any class, introduction of 1903 or later.
1st, W. G. Winsor, "Mme. Victor Vassier," $2; 2d, A. E. Johnson, "Jeanne Charmet," $1.

Pompon, twelve vases of three blooms each, named varieties:
1st, J. K. Alexander, $3; 2d, Geo. D. Cook, $2; 3d, E. W. Ela, $1.

Single, twelve vases, of three blooms each, named varieties:
1st, Edgar W. Ela, $3; 2d, Geo. D. Cook, $2.

General display one hundred or more bottles:
1st, G. H. Walker, $8; 2d, E. W. Ela, $6; 3d, Mrs. L. M. Towle, $4.

HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties:
1st, Blue Hill Nurseries, $8; 2d, Blue Hill Nurseries, $6; 3d, Mrs. E. M. Gill, $4.

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Gratuities: —

Harvard Botanic Garden, Display of Tuberous Begonias, $5.
" " " " " Herbaceous Plants, $10.
" " " " " Economic and other Plants, $8.
" " " " " Nepenthes and Ouvirandra, $10.
" " " Group of Foliage Plants, $60.
Mrs. N. P. Brown, Display of Tuberous Begonias, $2.
R. P. Struthers, Display of Dahlias, $3.
The Hon. Mrs. G. Duncan, Display of Dahlias, $2.
J. K. Alexander, Gladiolus, $3.
Edward MacMulkin, Display of Evergreen Trees, $8.
Chas. S. Pratt, Collection of Gladioli, $3.
W. B. Hunt, Dahlias, $1.
R. & J. Farquhar & Co., Display of Foliage Plants and *Lilium Philippinense*, $15.
Henry A. Dreer, Display of Aquatics, $6.
Julius Roehrs, Display of Foliage Plants, $5.
Lager & Hurrell, Display of Orchids, $5.
Edward MacMulkin, Display of Foliage Plants, $15.
E. B. Wilder, Vase of *Hydrangea paniculata grandiflora*, $1.
W. W. Rawson, Display of *Impatiens Holstii*, $5.
Mrs. E. M. Gill, Display of Dahlias, $2.
Geo. B. Gill, *Ficus elastica variegata*, grown in dwelling house, $1.

Chrysanthemum Show.

November 9, 10, 11, 12,

Plants.

Henry A. Gane Memorial Fund.

Chrysanthemums.— Best specimen plant of Mrs. Jerome Jones, Yellow Mrs. Jerome Jones, or any of the sports or seedlings of these two varieties:
1st, J. S. Bailey, $10.
Best specimen plant of Marcia Jones, Henry A. Gane, Mrs. H. A. Gane, or any of the sports or seedlings of these three varieties:
1st, E. J. Mitton, $10.

Society's Prizes.

Display of eight named plants in not over twelve-inch pots, any or all classes, distinct varieties:
1st, J. S. Bailey, $75; 2d, E. W. Converse, $50.

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Two Japanese Incurved:
1st, J. S. Bailey, $10; 2d, E. W. Converse, $6.
Two Reflexed, distinct named varieties:
1st, J. S. Bailey, $10.
Specimen Japanese Incurved, named variety:
1st, J. S. Bailey, $6; 2d, E. W. Converse, $4.
Specimen Reflexed, named variety:
1st, J. S. Bailey, $6; 2d, E. W. Converse, $4.
Specimen Pompon, named variety:
1st, E. W. Converse, $6.
Six plants of six different varieties, grown to six stems with one bloom to each, in not over seven-inch pots:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $15; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $10.
Twelve plants naturally grown, without disbudding, may be arranged with palms and ferns for effect:
2d, E. W. Converse, $30; 3d, Mrs. J. L. Gardner, $25.

FLOWERS.

Representative collection of classes, labeled in accordance with the classification of the Chrysanthemum Society of America:
1st, D. F. Roy, $30; 2d, Geo. F. Fabyan, $25.

Josiah Bradlee Fund.

Twenty-five blooms of twenty-five distinct varieties, named:
1st, E. D. Jordan, $25; 2d, Thomas Doliber, $15; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $10.
Six vases, six named varieties, ten blooms in each:
1st, Thomas Doliber, $30; 2d, M. F. Plant, $25.

Henry A. Gane Memorial Fund.

CHRYSANTHEMUMS.— Best six specimen blooms of Mrs. Jerome Jones, Yellow Mrs. Jerome Jones, or any of the sports or seedlings of these two varieties:
1st, Arthur F. Whitin, Yellow Mrs. Jerome Jones, $6; 2d, A. F. Whitin, Mrs. Jerome Jones, $4.
Best six specimen blooms of Henry A. Gane, Bessie Jones, Marcia Jones, or any of the sports of these three varieties:
1st, Thomas Doliber, $5.

Society's Prizes.

Twelve blooms Incurved, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $6.

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Twelve blooms Japanese, named:
1st, Peter B. Robb, $8; 2d, E. D. Jordan, $6; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $4.
Twelve blooms Japanese Incurved, named:
1st, Peter B. Robb, $8; 2d, E. D. Jordan, $6; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $4.
Twelve blooms Reflexed, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $8.
Twelve blooms Anemone, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $6.
Twelve sprays Pompons, named, distinct:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $5; 2d, P. B. Robb, $3.
Six best varieties, named, introductions of the current year:
1st, Peter B. Robb, $6; 2d, Morton F. Plant, $4.
Vase of ten blooms on long stems, Pink, named:
1st, T. Doliber, $10; 2d, James Nicol, $8; 3d, A. F. Whitin, $6.
Vase of ten blooms on long stems, Red, named:
1st, G. F. Fabyan, $10; 2d, Thomas Doliber, $8.
Vase of ten blooms on long stems, White, named:
1st, T. Doliber, $10; 2d, M. F. Plant, $8; 3d, Mrs. John Shepard, $6.
Vase of ten blooms on long stems, Yellow, named:
1st, T. Doliber, $10; 2d, M. F. Plant, $8; 3d, A. F. Whitin, $6.
Vase of ten blooms on long stems, any other color, named:
1st, G. F. Fabyan, $10; 2d, T. Doliber, $8; 3d, T. Doliber, $6.
ORCHIDS.— Display of named species and varieties, filling not less than twenty bottles:
1st, J. E. Rothwell, Appleton Silver Gilt Medal; 2d, Col: Chas. Pfaff, Appleton Silver Medal.
CARNATIONS.— Twenty-five blooms of any named Crimson variety:
1st, Wm. Nicholson, $4; 2d, Backer & Co., $3; 3d, S. J. Goddard, $2.
Twenty-five blooms of any named Dark Pink variety:
1st, G. N. Black, $4.
Twenty-five blooms of any named Light Pink variety:
1st, Wm. Nicholson, $4; 2d, S. J. Goddard, $3; 3d, Backer & Co., $2.
Twenty-five blooms of any named Scarlet variety:
1st, Cottage Gardens, $4.
Twenty-five blooms any named White variety:
1st, Wm. Nicholson, $4; 2d, H. A. Steven Co., $3.
Twenty-five blooms of any named Yellow Variegated variety:
1st, Backer & Co., $4.
Twenty-five blooms of any named White Variegated variety:
1st, S. J. Goddard, $4; 2d, Wm. Nicholson, $3; 3d, G. N. Black, $2.

Gratuities: —

Lager & Hurrell, Display of Orchids, $12.

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R. Vincent Jr. & Son, Display of cut Hardy Chrysanthemums, $15.
Wm. Nicholson, Five vases Carnations, $5.
Mrs. E. M. Gill, Display of Chrysanthemums, $8.
Edward MacMulkin, Display of *Cattleya labiata*, $5.
Waban Rose Conservatories, Vase of rose Wellesley, $2.
Warren Heustis & Son, *Euonymus Bungeanus*, $1.
Henry H. Barrows & Son, Display of *Nephrolepis Whitmani* and *Barrowsi*, $8.
R. & J. Farquhar & Co., Display of Palms, $25.
Edward MacMulkin, " " Foliage Plants, $40.
Mrs. A. W. Blake, Chrysanthemums and Palms, $15.
Thomas Doliber, Display of Chrysanthemums, $30.
James Nicol, Vase of Chrysanthemum Mrs. Jerome Jones, $1.
Julius Roehrs Co., Display of Orchids and Foliage Plants, $8.
James Fraser, Vase of Chrysanthemum Mrs. Thirkell, $3.

Society's Silver Gilt Medal.

March 4. Walter P. Winsor, Collection of Dendrobiums.

Society's Silver Medals.

February 11. Guttman & Weber, Seedling Carnation, Victory.
March 23. E. O. Orpet, Seedling Cattleya, C. × Olivia.
November 9. R. Vincent Jr. & Son, Display of cut sprays of Hardy Chrysanthemums.
November 9. R. & J. Farquhar & Co., Display of Ornamental Evergreens.
December 14. Oakes Ames, *Cypripedium × tonso-Charlesworthii*.

First Class Certificates of Merit.

January 21. W. A. Manda, *Cymbidium Tracyanum*.
February 11. S. J. Goddard, Seedling Carnation, Helen Goddard.
Wm. Palmer, Carnation Red Lawson.
Peter Murray, Seedling Carnation, Winsor.
J. E. Rothwell, New seedling Lælia, Mrs. M. Gratrix.
R. Witterstaetter, Seedling Carnation, The Aristocrat.
" " " Afterglow.
March 4. Walter P. Winsor, *Dendrobium Ainsworthii roseum*.
" " " " " " Venus.
" " " " " " *nobile Murrhinianum*.
" " F. L. Ames Estate, *Miltonia Bleuana virginalis*.
" 23. Henry H. Barrows & Son, *Nephrolepis Barrowsi*.

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March 23. F. R. Pierson Co., Baby Rambler Rose Mme. Norbert Levavasseur.
March 23. M. F. Plant, *Phalænopsis amabilis Rimestadtiana.*
April 15. J. E. Rothwell, *Cattleya Guatemalensis.*
" 29. Robert Cameron, *Impatiens Holstii.*
June 3. E. O. Orpet, Lælia × Pacavia.
" 3. J. E. Rothwell, *Lælio-cattleya Lycedas.*
" 17. E. J. Shaylor, Peony Germain Bigot.
" " E. J. Shaylor, " Mad. Treyeran.
" " T. C. Thurlow " White Lady.
August 5. Blue Hill Nurseries, *Tritonia hybrida Germanica.*
" 5. " " " " " Geo. Davidson.
" 19. John Lewis Childs, Gladiolus Childsii America.
September 14. Henry H. Barrows, *Nephrolepis Whitmani.*
" 14. Henry A. Dreer, *Victoria Trickeri.*
November 9. M. A. Patten, Carnation Pink Patten.
" 9. Julius Roehrs Co., *Phoenix Roebelinii.*
December 14. Oakes Ames, *Zygo-colax × Amesianus.*
" 14. A. H. Fewkes, *Stevia serrata compacta variegata.*

Honorable Mentions.

January 21. W. A. Manda, Native Hybrid Lycaste.
" " " " " *Dendrobium nobile alba*, collected plant.
" " E. O. Orpet, New Hybrid Orchid, Cattleya × Susanæ.
February 4. Mrs. J. Montgomery Sears, Seedling Amaryllis.
" 11. E. N. Pierce & Son, Seedling Carnation, Gov. Guild.
" " M. A. Patten " " Mikado.
" " J. E. Rothwell, *Lælio-cattleya*, Adolphus.
March 4. Walter P. Winsor, *Dendrobium Euryalus.*
" 4 " " " " Dominii.
" 23. Lucius H. Foster Estate, Nephrolepis Dorchester.
" " The Misses Eldridge, *Bougainvillæa spectabilis.*
" " Lager & Hurrell, *Cypripedium glaucophyllum.*
" " Bayard Thayer, *Phlox divaricata*, forced in pans.
" " John E. Haines, Seedling Carnation, John E. Haines.
" " John Murchie " " Fred Burki.
" " Chicago Carnation Co., Carnation Cardinal.
" " W. J. & M. S. Vesey, Carnation Glendale.
" " Wm. Sim, Sweet Pea Earliest Sunbeam.
" " M. H. Walsh, Seedling Rose, 1903.
" " Julius Roehrs, *Ficus Cannonii.*
April 15. J. E. Rothwell, *Phaius Marthæ.*
June 3. J. E. Rothwell, *Cypripedium Lamonteanum.*
" 17. E. J. Shaylor, Peony M. Martin Cahuzac.

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June 24. J. W. Howard, *Salvia Sclaria.*
" " George Hollis, Seedling Peony, No. 96.
" " " " " " " 95.
" " " " " " " 60.
July 8. Jackson Dawson, Seedling rose, Daybreak.
September 14. A. E. Johnson, Seedling Dahlia, No. 44.
" " " " " " " " 1, Gen. Miles.
" " " " " " " " 75.
" " " " " " " " 27.
" " " " " " " " 25.
" " " " " " " " 2.
" " " " " " " " 10.
" " " " " " " " 6.
" " " " " " " " 89.
" " Henry A. Dreer, *Nymphæa, Bissetii.*
" " " " " " " *dentata magnifica.*
" " E. W. Green, Seedling single Dahlia, Mary Green.
" " Julius Roehrs, *Alpinia Sanderæ.*
" " Walter Hunnewell, *Sedum spectabile*, rose colored variety.
November 9. H. A. Jahn, Seedling light pink Carnation.
" " Peirce Farm, Carnation Marion Peirce.
" " G. B. Anderson, Seedling Carnation, No. 10, Scarlet.
" " Backer & Co., Pink sport from Carnation Enchantress.
" " Backer & Co., Seedling Carnation, No. 14, Yellow.
" " Peter Fisher, " " " 17, Pink.
" " Dr. H. P. Walcott " " " 1, Yellow.

Votes of Thanks.

February 11. Mrs. E. M. Gill, Display of Flowers.
March 23. Geo. F. Fabyan, *Schizanthus Weistonensis.*
" 23. James L. Little, Double Nasturtiums.
June 3. Lowthorpe School of Horticulture, Vase of Stocks.
" " R. & J. Farquhar & Co., Display of Herbaceous Flowers.
" " Walter Hunnewell, Display of Rhododendron Flowers.
" " Park Department, City of Boston, Display of Flowering Trees and Shrubs.
" 17. R. & J. Farquhar & Co., Display of Peony Festiva Maxima.
" 17. Walter Hunnewell, " " Rhododendrons.
" 24. H. A. Dreer, Herbaceous Plants.
" 24. Miss S. B. Fay, Display of Roses.
August 19. C. W. Parker, " " "
" 26. Park Department, City of Boston, Display of Viburnums in fruit.

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September 14. Park Department, City of Boston, Display of Shrubs in fruit.
November 9. H. A. Wheeler, *Cattleya labiata*, var.
" 9. J. E. Rothwell, *Cypripedium insigne Sanderæ*.
" 9. H. A. Stevens Co., Carnation Pink Lawson.

Cultural Awards.

Society's Silver Medals.

June 3. T. D. Hatfield, Superior cultivation of Hybrid Rhododendron, Lucidum.
September 14. Robert Cameron, Superior arrangement of Decorative Foliage Plants.

First Class Certificates of Merit.

February 11. Wm. C. Rust, Superior cultivation of *Dendrobium Ainsworthii*.
March 4. W. N. Craig, Superior cultivation of Phalænopsis.
" 23. Julius Roehrs Co., Superior cultivation of *Cymbidium Lowianum*.
April 29. Robert Marshall, Superior cultivation of *Amaryllis Vittata*.
" 29. Thomas T. Watt, Superior cultivation of *Saccolabium ampullaceum*.
June 3. Wm. C. Rust, Superior cultivation of Calceolaria Golden Gem.
October 28, J. L. Smith, Superior cultivation of *Zygopetatum Mackayi*.

Arthur H. Fewkes,
Robert Cameron,
William N. Craig,
William Nicholson,
James Wheeler,
} *Committee on Plants and Flowers.*

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REPORT OF THE COMMITTEE ON FRUITS FOR THE YEAR 1905.

BY WILFRID WHEELER, CHAIRMAN.

In reducing the Committee on Fruits from five members to three the wisdom of the Society has been clearly shown, for it is easier with the smaller number to do more concentrated and effective work, as greater responsibility is felt by each. The labor of the committee has been of necessity increased, especially at the larger shows; so it has been found more expedient to prepare all prize cards beforehand, leaving only the name of the successful exhibitor to be inserted on the card when the award is made by the committee. The season just passed has been a very uneven one with regard to fruit displayed, on account of some of the exhibitions occurring at a time when the fruits were not in their perfection. This was especially true of the Rose and Strawberry Exhibition and the committee believes that this date should be left open to suit the season.

The prospects for successful fruit growing in Massachusetts were never better than at present. There is an exodus of people to the country, a making of farms, planting of gardens and orchards by amateurs, a striving on the part of the commercial grower to produce quality rather than quantity in his fruit. All of which indicates a deeper interest in matters pertaining to horticulture and will lead to a larger consumption by the people of all kinds of the best fruits. On the other hand the fruit industry is threatened by the ravages of the gypsy and brown-tail moths as well as by numerous other pests, rusts, and fungus growths which may curtail fruit growing on an extensive scale. On this account, however, there is no need for real discouragement, only an opportunity for the gardener, the householder and amateur in general to exercise care and precaution and produce, in spite of these disadvantages, sound and excellent fruit.

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The committee believes that there is a large field open to all classes of growers in the planting of dwarf apple and pear trees by which fruit can be produced in two and three years from the planting of the tree, instead of from eight to ten as in the case of standard trees. Fruit produced on the dwarf trees in one quarter the time and one-tenth the space is as good as that grown on standard trees. We think also that the spraying of fruit trees, bushes, vines, and plants should be very strongly impressed on the people of the state, and, if necessary, this Society should take some action in regard to the matter; also that pruning and trimming of orchards should be brought forcibly to the notice of their owners. These old orchards could be made to produce a fine quality of fruit provided proper care and scientific treatment were employed.

Boston imports from other states better apples than are produced here, for the reason that Massachusetts orchardists will not give their orchards the careful attention that is given in other parts of the country. Apples come from Oregon, Washington, Idaho, and California, and all sell for more per bushel than Massachusetts apples do by the barrel. The apple crop in Massachusetts last year was small but of better quality than usual. Summer apples are being more largely grown and prove quite profitable; the best varieties are Williams, Red Astrachan, and Duchess of Oldenburgh. For fall apples Gravenstein, Porter, McIntosh, and Wealthy are most grown; while for winter, Baldwin, Northern Spy, R. I. Greening, Sutton, Roxbury Russett, and King are popular varieties.

The pear crop last season was large and of very good quality. For market most growers are grafting their pears to Bosc in preference to Bartlett, while the amateurs still cling to the old varieties which add much to our exhibitions. Many of the old kinds are excellent pears for the table but are not suitable for shipping.

Peaches were quite abundant and of very fine quality the past season. They were profitable to New England growers as the crop from other states was small and not very good, except the Georgia peaches which coming early do not compete with the native fruit.

Japanese plums were never so abundant. This crop is becoming very popular in New England. We find new varieties are being added and, owing to their freedom from black knot, they

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bid fair to depose the European varieties. Among the best Japanese plums are Abundance, Red June, Burbank, October Purple, Climax, Wickson, and Chabot.

The crop of native grapes in this state does not materially effect the market, for New York supplies it almost entirely. This, however, should not discourage the growing of a fruit which adds much to the pleasure and beauty of a garden and is not without its economic value. The long warm fall this past season ripened grapes to perfection so we had very fine specimens at our exhibitions. Concord, Niagara, Green Mountain, Worden, Moore's Early, and Delaware are most frequently grown in this state.

Among the small fruits grown in New England the strawberry is the most important. Owing to its adaptability and ease of culture it is grown by both professional and amateur with great success. The market conditions for this fruit are not as favorable as in former times for berries from New York and New Jersey are apt to conflict with the native crop. During the past season better prices were realized for strawberries than the year before and we believe that there is a good market for a strictly first class berry put up in an attractive form; trays in preference to baskets. In the other small fruits, currants, gooseberries, blackberries, and raspberries, the crop was fair and of good quality. We have never seen such fine gooseberries and currants as were exhibited in this hall last season.

The weather conditions for 1905 were ideal for all fruits except strawberries, blackberries, and raspberries. The long continued fair weather during September and October was excellent for apples, pears, grapes, and peaches. Plums were badly hurt by the heavy rain of September 4–6, and some of the peaches were also damaged at this time.

The committee regrets to say that there was a great lack of greenhouse fruits at the exhibitions of 1905. We feel sure there are growers who could produce excellent fruit and add much to our exhibitions. With the exception of grapes there were no greenhouse fruits shown and we believe that more encouragement should be given to the growing of fruit under glass.

We would also say that, with the exception of strawberries, there were very few new varieties of fruit exhibited this past season

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and we would therefore call the attention of the Society to the advisability of requesting the different Agricultural colleges of New England to send specimens of fruit to our exhibitions. We feel sure that this would be of great interest and value to our exhibitors, as these institutions have opportunities for growing and testing fruit and developing new varieties that are not possessed by the amateur or commercial grower.

Owing to the late season, combined with dark and wet weather for a week previous to the exhibition, strawberries were not in the best condition at the Rose and Strawberry Show; hence there were not as many exhibited as were expected.

George F. Wheeler of Concord was the largest exhibitor of strawberries staging about fifty baskets, containing such varieties as Bubach, Brandywine, Minute Man, Clyde, Haverland, Sample, Marshall, Senator Dunlap, Nick Ohmer, Parson's Beauty, Mead, and Granville. These last two were exhibited for the first time. Granville, which was awarded first prize for any other variety in class 190, is a very promising garden variety of the best quality.

A. W. Clark of Providence, R. I., exhibited Cardinal, Challenge, and Victor for the first time. Cardinal is a very promising strawberry of most brilliant color, productive and of good quality. Mr. Clark showed a number of fruit stems of Cardinal from which one could see the wonderful productiveness of the plant. Victor is a very flat berry, cockscomb in shape; very large and of fair quality.

I. E. Coburn of Everett staged about twenty-five baskets of strawberries containing such varieties as Minute Man, Belmont, Jessie, Brandywine, Klondike, Haverland, and Marshall.

George V. Fletcher staged about eighteen baskets containing such varieties as Marshall, Belmont, Sample, and Brandywine. Mr. Fletcher's Marshalls were very fine.

Among other exhibitors in the fruit class were Miss S. B. Fay, John Ward, Warren Heustis & Son, and Elias L. Wheeler. N. B. White exhibited for the first time a seedling strawberry very much like Marshall in color and size, but of much better flavor and far more productive. This was awarded first prize for any new variety not previously exhibited.

S. H. Warren of Weston showed Great Scott, Golden Gate, Brandywine, Glen Mary, Sample, and Miller.

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Golden Gate, a seedling of Mr. Warren's, is considered a very promising variety. It is large, rather shouldered, bright crimson, good quality, and very productive. It was first exhibited in 1904.

George V. and J. H. Fletcher exhibited very good cherries and Wm. C. Winter, fine Black Hamburg grapes.

At the exhibition of July 8–9 a very fine display of strawberries was seen, there being seven entries in this class alone with the following varieties, Golden Gate, Cardinal, Commonwealth, President, and North Shore; the last two for the first time. Mr. Benj. M. Smith of Beverly took all three prizes with President, Commonwealth, and North Shore, in order named.

The season was too early for raspberries but the exhibit of cherries was very fine, there being competition in all classes, and eight entries in class 217, with such varieties as Hyde's Seedling, Hovey, Yellow Spanish, Bigareau, Napoleon, and Early Richmond. Very fine Black Tartarian cherries were displayed by George V. Fletcher and Charles F. Curtis. Currants, both red and white were very good and there was keen competition in these classes. A gratuity was awarded to Wm. H. Spooner for Kansas Blackcaps which were very fine.

The second July exhibition brought out very fine currants and gooseberries. W. G. Kendall exhibited Wilder currant and Bates' gooseberry, each of which received first prize in its class.

A very fine showing of apples, pears, peaches, plums, and blackberries was seen at the Hall during the August exhibitions. Peaches and plums were especially good and there was keen competition in all these classes. The committee would specially commend the exhibit of Red Astrachan apple by Elias Wheeler; Dorchester blackberry by M. W. Chadbourne; Sneed peach by A. M. Clement; Greensboro Peach by G. V. Fletcher; Chenango apple by Charles F. Curtis; Carman peach by F. H. Evans; collection of peaches by David L. Fiske; Charbot and Abundance plum by E. L. Lewis; Alexander and Chenango apple by Edward E. Cole; Bartlett pear by Varnum Frost; and Clapp's Favorite pear by John Burnett.

These August exhibitions are among the most interesting of the fruit shows that we have, as there are many changes in the varieties of fruit during this month, but the committee believes, that

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two exhibitions would cover all classes with, perhaps, the exception of blackberries. The new Japanese plum, Climax, was shown and promises well.

Owing to lack of room the Annual Exhibition did not do justice either to the committee or to the exhibitors; all classes were well filled and there were particularly large entries of Bosc, Bartlett, Louise Bonne de Jersey, Angouleme, Howell, and Seckel pears; Gravenstein, Hubbardston, and McIntosh apples; Concord, Worden, Niagara, and Delaware grapes; Japanese plums of many varieties; and Elberta peaches.

The display of grapes was one of the best ever seen at the Annual Exhibition. Joseph S. Chase had a very fine collection among which were Delaware, Herbert, Lindley, Massasoit, Niagara, Pocklington, Prentiss, Vergennes, Wilder, and Poughkeepsie Red. Edward R. Farrar showed splendid Niagara and Concord grapes, and H. R. Kinney, good Worden.

The competition in Bosc pears, of which there were eighteen entries, was very close, necessitating the weighing of specimens by the committee before awarding second and third prizes.

Bartlett, Seckel, and Anjou pears were very fine. W. G. Kendall had very fine Dana's Hovey, Bosc, and Seckel pears. John L. Bird also had a very good collection of pears. Charles F. Curtis exhibited excellent Bosc, Bartlett, Merriam, Hardy, and Clairgeau. Wm. Milman showed very fine Seckel and Paradise pears. George V. Fletcher had a good collection of fruit as well as fine specimens in many individual classes.

On the whole the pears were excellent and proved one of the most interesting parts of the exhibit.

Apples were not as numerous as was expected but the exhibit was very good. Some very fine Gravenstein were shown by G. L. Priest; McIntosh by Hittinger Fruit Co.; Porter by Wilfrid Wheeler; Hubbardston by C. M. Handley; and Washington Strawberry by A. E. Hartshorn. The committee would call attention to the very fine apples displayed by Edward E. Cole. We seldom see such good apples in all varieties as were shown by Mr. Cole.

Thos. W. Head had some very fine Black Hamburg, Black Alicante, Muscat of Alexandria, and Gros Colman hot-house

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grapes which were awarded first prizes. The committee regrets that more room could not have been given to this exhibit of fruit in order to bring it more prominently before the Society.

One of the features of this exhibition was a collection of foreign and native species of Malus, Pyrus, and Vitis Fruits, exhibited by Jackson Dawson of the Arnold Arboretum, showing the wonderful evolution of our apples, pears, and grapes from their wild and primitive state to a condition of real worth and economic value. This exhibit was awarded a silver medal and the committee feels very grateful to Mr. Dawson for this interesting display.

The fruit was a welcome addition at the Chrysanthemum exhibition. Five large tables were filled with a splendid showing of apples, pears, quinces, and cranberries which, having plenty of room, were exhibited to great advantage. As usual apples and pears predominated, and the display was far better than was expected. There were twenty entries of Baldwin apples.

The Fameuse, Lady Sweet, Northern Spy, Tolman Sweet, and King from Edward E. Cole were very fine, as were also Bellflower, Hunt Russet, and Roxbury Russet from C. F. Boyden.

Pears were exceptionally good, Wm. H. Derby showing very fine Augouleme, Bosc, and Clairgeau; Mrs. C. C. Converse and Mrs. Lester Leland, large Anjou and Vicar; E. W. Wood, fine Comice and Dana's Hovey; W. G. Kendall, very excellent Dana's Hovey. Edward B. Wilder showed very fine Lawrence and Vicar, and Charles F. Curtis, fine Clairgeau. Quinces were a feature of the show and those exhibited by I. H. Locke were exceptionally good.

Cranberries sent by Henry J. Thayer were very good.

There have been nine exhibitions of fruit during the season, and in these nine exhibitions there were one hundred and ninety-five classes open to competition; of these one hundred and seventy-one were competed for. There were eight gratuities and one silver medal awarded.

The total amount of money appropriated for prizes in 1905 was $1275.00; of this $966.00 was awarded; leaving an unexpended balance of $294.00.

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PRIZES AND GRATUITIES AWARDED FOR FRUITS.

1905.

Rose and Strawberry Exhibition.

June 24 and 25.

Theodore Lyman Fund.

Strawberries.— Four quarts of any variety:
1st, G. V. Fletcher, Marshall, $15; 2d, Miss S. B. Fay, Marshall, $12; 3d, John Ward, Marshall, $10; 4th, A. W. Clark, Cardinal, $8.

Regular Prizes.

For the largest and best collection, not less than fifteen baskets of two quarts each, and not less than five varieties:
1st, G. F. Wheeler, $15; 2d, I. E. Coburn, $10.

Ten baskets, not less than three varieties, two quarts each:
1st, G. F. Wheeler, $10; 2d, G. V. Fletcher, $8.

Five baskets of five varieties, one quart each:
1st, G. F. Wheeler, $6; 2d, S. H. Warren, $5; 3d, I. E. Coburn, $4.

Two quarts of Belmont:
1st, I. E. Coburn, $3; 2d, G. V. Fletcher, $2.

Brandywine:
1st, S. H. Warren, $3; 2d, G. F. Wheeler, $2; 3d, I. E. Coburn, $1.

Bubach:
1st, G. F. Wheeler, $3.

Clyde:
2d, G. F. Wheeler, $2.

Haverland:
1st, I. E. Coburn, $3; 3d, G. F. Wheeler, $1.

Jessie:
1st, I. E. Coburn, $3.

Marshall:
1st, G. V. Fletcher, $3; 2d, W. A. Blodgett, $2; 3d, John Ward, $1.

Minute Man:
1st, G. F. Wheeler, $3.

Nick Ohmer:
2d, G. F. Wheeler, $2.

Sample:
1st, G. V. Fletcher, $3; 2d, John Ward, $2; 3d, G. F. Wheeler, $1.

Any other variety:

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1st, G. F. Wheeler, Granville, $3; 2d, A. W. Clark, Challenge, $2; 3d, G. F. Wheeler, Senator Dunlap, $1.

One quart of any new variety not previously exhibited:

1st, N. B. White, Seedling, $3; 2d, A. W. Clark, Cardinal, $2.

CHERRIES.— Two quarts of any variety:

1st, G. V. Fletcher, Guigne Noir, $3; 2d, J. H. Fletcher, Queen Ann, $2.

FOREIGN GRAPES.— Two bunches of any variety:

1st, W. C. Winter, Black Hamburg, $5.

JULY 8 AND 9.

STRAWBERRIES.— Two quarts of any variety:

1st, B. M. Smith, President, $3; 2d, B. M. Smith, Commonwealth, $2; 3d, B. M. Smith, North Shore, $1.

CHERRIES.— Two quarts of Black Eagle:

1st, C. B. Travis, $3; 2d, G. V. Fletcher, $2; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $1.

Black Tartarian:

1st, G. V. Fletcher, $3; 2d, C. F. Curtis, $2; 3d, W. A. Green, $1.

Coe's Transparent:

1st, C. S. Smith, $3; 2d, J. L. Bird, $2.

Downer:

1st, C. S. Smith, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.

Any other variety:

1st, C. S. Smith, Hyde's Seedling, $3; 2d, Miss Vera Chapell, Hovey, $2; 3d, C. F. Curtis, Yellow Spanish, $1.

CURRANTS.— Two quarts of any Red variety:

1st, Mrs. C. C. Converse and Mrs. Lester Leland, Cherry, $3; 2d, W. J. Clemson, Versaillaise, $2; 3d, G. V. Fletcher, Versaillaise, $1.

Two quarts of any White variety:

1st, J. H. White, White Imperial, $3; 2d, G. V. Fletcher, White Grape, $2; 3d, E. L. Lewis, White Grape, $1.

Gratuities: —

W. H. Spooner, Kansas Blackcaps, $1.

E. E. Doran, Franconia Raspberries and Versaillaise Currants, $1.

JULY 22.

RASPBERRIES.— Two quarts of any variety:

1st, Mrs. C. C. Converse and Mrs. Lester Leland, Cuthbert, $3; 2d, M. Hemenway, Cuthbert, $2; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, Columbia, $1.

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CURRANTS.— Two quarts of any Red variety:
1st, W. G. Kendall, Wilder, $3; 2d, G. V. Fletcher, Versaillaise, $2; 3d, D. L. Fiske, Red Cross, $1.
Two quarts of any White variety:
1st, H. R. Kinney, White Grape, $3; 2d, J. H. White, White Imperial, $2; 3d, W. G. Kendall, White Grape, $1.
GOOSEBERRIES.— Two quarts of any variety of American origin:
1st, W. G. Kendall, Bates, $3; 2d, J. S. Chase, Triumph, $2; 3d, F. H. Evans, Triumph, $1.
Two quarts of any variety of Foreign origin:
3d, J. S. Chase, Hero of the Nile, $1.

AUGUST 5.

APPLES.— Red Astrachan:
1st, E. L. Wheeler, $3; 2d, W. C. Winter, $2; 3d, E. L. Lewis, $1.
Sweet Bough:
1st, G. V. Fletcher, $3; 2d, C. B. Travis, $2; 3d, Mrs. A. E. Underwood, $1.
Yellow Transparent:
1st, G. L. Brown, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Any other variety:
1st, G. V. Fletcher, Williams, $3.
PEARS.— Giffard:
1st, J. Burnett, $3; 2d, J. L. Bird, $2; 3d, W. C. Winter, $1.
Summer Doyenne:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, W. C. Winter, $2; 3d, Wilfrid Wheeler, $1.
BLACKBERRIES.— Two quarts of any variety:
1st, M. W. Chadbourne, Dorchester, $3; 2d, W. J. Clemson, Rathburn, $2.
PEACHES.— Open culture, any variety:
1st, A. M. Clement, Sneed, $3; 2d, D. L. Fiske, Waterloo, $2.

Gratuity: —

Mrs. A. E. Monblo, Strawberry Raspberry, $1.

AUGUST 12.

APPLES.— Oldenburg:
2d, W. P. Milner, $2; 3d, G. Nelsen, $1.
Any other variety:
1st, Hittinger Fruit Co., Williams, $3; 2d, E. L. Wheeler, Red Astrachan, $2; 3d, Wilfrid Wheeler, Williams, $1.

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PEARS.— Clapp's Favorite:
1st, John Burnett, $3; 2d, W. J. Clemson, $2; 3d, J. L. Bird, $1.
Any other variety:
1st, Charles Scully, Giffard, $2; 2d, Hittinger Fruit Co., Giffard, $1.
PEACHES.— Twelve specimens of outdoor culture:
1st, Hittinger Fruit Co., Matchless, $3; 2d, G. V. Fletcher, Greensboro, $2; 3d, D. L. Fiske, Greensboro, $1.
BLACKBERRIES.— Two quarts of any variety:
1st, W. J. Clemson, Rathburn, $3; 2d, M. W. Chadbourne, Dorchester, $2; 3d, Mrs. E. M. Gill, Wachusett, $1.
PLUMS.— Japanese, any variety:
1st, E. L. Lewis, Chabot, $3; 2d, E. L. Wheeler, Red June, $2; 3d, D. L. Fiske, Red June, $1.
FOREIGN GRAPES.— Two bunches of any variety:
1st, W. C. Winter, Black Hamburg, $4.

Gratuity: —

S. H. Warren, Pan-American Strawberry, $1.

AUGUST 19.

APPLES.— Chenango:
1st, C. F. Curtis, $3; 2d, G. L. Brown, $2.
Williams:
1st, Varnum Frost, $3; 2d, G. V. Fletcher, $2.
Any other variety:
1st, W. F. Low, Oldenburg, $3; 2d, Aaron Low, Oldenburg, $2; 3d, W. Heustis & Son, Gravenstein, $1.
PEARS.— Rostiezer:
1st, John Burnett, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Tyson:
1st, J. L. Bird, $3.
Any other variety:
1st, M. W. Chadbourne, Bartlett, $3; 2d, M. W. Chadbourne, Clapp's Favorite, $2; 3d, J. L. Bird, Clapp's Favorite, $1.
PEACHES.— Any variety:
1st, G. V. Fletcher, Greensboro, $3; 2d, D. L. Fiske, Greensboro, $2; 3d, D. L. Fiske, Triumph, $1.
PLUMS, JAPANESE.— Abundance:
1st, E. L. Lewis, $3; 2d, O. B. Kenrick, $2; 3d, A. M. Clement, $1.
Burbank:
1st, M. Hemenway, $3.
Any other variety:
1st, G. V. Fletcher, Bradshaw, $3; 2d, W. P. Hutchinson, Red June, $2; 3d, B. P. Ware, Red June, $1.

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Gratuity: —

M. W. Chadbourne, Dorchester Blackberries, $1.

AUGUST 26.

APPLES.— Gravenstein:
1st, E. E. Cole, $3; 2d, O. B. Kenrick, $2; 3d, H. A. Clark, $1.
Porter:
1st, Wilfrid Wheeler, $3; 2d, W. Heustis & Son, $2; 3d, Leonard Morton, $1.
Williams:
1st, H. A. Clark, $3; 2d, Varnum Frost, $2; 3d, Wilfrid Wheeler, $1.
Any other variety:
1st, E. E. Cole, Alexander, $3; 2d, E. E. Cole, Chenango, $2; 3d, W. F. Low, Oldenburg, $1.
PEARS.— Bartlett:
1st, Varnum Frost, $3; 2d, John Burnett, $2; 3d, John Mahan, $1.
Any other variety:
1st, G. V. Fletcher, Clapp's Favorite, $3; 2d, W. J. Clemson, Clapp's Favorite, $2; 3d, J. L. Bird, Tyson, $1.
PEACHES.— Collection, not less than three varieties:
1st, D. L. Fiske, $4.
Single dish, of any variety:
1st, F. H. Evans, Carman, $3; 2d, G. V. Fletcher, Greensboro, $2; 3d, D. L. Fiske, Mamie Ross, $1.
PLUMS.— Any variety:
1st, E. B. Parker, Climax, $3; 2d, O. B. Kenrick, Bradshaw, $2; 3d, E. B. Parker, Shiro, $1.

Gratuity: —

M. W. Chadbourne, Dorchester Blackberries, $1.

ANNUAL EXHIBITION.

SEPTEMBBR 14, 15, 16, 17.

Theodore Lyman Fund.

APPLES.— Fletcher Russet:
1st, C. M. Handley, $3; 2d, W. H. Teele, $2; 3d, G. V. Fletcher, $1.
Pound Sweet:
1st, G. V. Fletcher, $3.
Washington Royal or Palmer:
1st, A. E. Hartshorn, $3.

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Any other variety:
1st, E. E. Cole, Chenango, $3; 2d, L. F. Priest, Rolfe, $2; 3d, E. E. Cole, Alexander, $1.

Samuel Appleton Fund.

APPLES.— Baldwin:
1st, G. V. Fletcher, $3; 2d, E. E. Cole, $2; 3d, A. E. Hartshorn, $1.
Hubbardston:
1st, C. M. Handley, $3; 2d, W. H. Teele, $2; 3d, G. F. Wheeler, $1.
PEARS.— Bosc:
1st, W. G. Kendall, $3; 2d, Wilfrid Wheeler, $2; 3d, C. F. Curtis, $1.
Sheldon:
1st, G. E. Freeman, $3; 2d, C. W. Libby, $2; 3d, W. G. Kendall, $1.

Benjamin V. French Fund.

APPLES.— Gravenstein:
1st, L. F. Priest, $3; 2d, J. B. Shurtleff, Jr., $2; 3d, E. E. Cole, $1.
Rhode Island Greening:
1st, A. E. Hartshorn, $3; 2d, G. V. Fletcher, $2; 3d, E. E. Cole, $1.

Marshall P. Wilder Fund.

PEARS.— Anjou:
1st, G. V. Fletcher $3; 2d, H. A. Clark, $2; 3d, F. W. Damon, $1.
Bartlett:
1st, C. F. Curtis, $3; 2d, W. H. Derby, $2; 3d, G. V. Fletcher, $1.
GRAPES.— Concord, twelve bunches:
1st, E. R. Farrar, $3; 2d, H. R. Kinney, $2; 3d, J. S. Chase, $1.
Worden:
1st, H. R. Kinney, $3.

Society's Prizes.

Collection of twelve varieties of Fruit, outdoor culture, not more than three varieties each of Apples, Pears, and Grapes admissible, the same number of specimens to be staged of each variety as in the individual named classes, decorative arrangement to be considered.
1st, G. V. Fletcher, $15.
APPLES.— Fall Orange or Holden:
1st, H. R. Kinney, $3; 2d, C. M. Handley, $2; 3d, W. A. Green, $1.
Foundling:
1st, C. M. Handley, $3.
McIntosh:
1st, Hittinger Fruit Co., $3; 2d, Wilfrid Wheeler, $2; 3d, C. M. Handley, $1.

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Maiden Blush:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, H. R. Kinney, $2; 3d, W. G. Kendall, $1.
Mother:
1st, O. B. Hadwen, $3; 2d, H. R. Kinney, $2.
Porter:
1st, Wilfrid Wheeler, $3; 2d, C. M. Handley, $2.
Sutton:
1st, H. A. Clark, $3; 2d, O. B. Hadwen, $2.
Washington Strawberry:
1st, A. E. Hartshorn, $3.
Wealthy:
1st, L. F. Priest, $3; 2d, O. B. Kenrick, $2; 3d, L. H. Browning, $1.

CRAB APPLES.— Hyslop; twenty-four specimens:
1st, A. E. Hartshorn, $3; 2d, W. H. Teele, $2.
Any other variety:
1st, W. A. Green, Transcendent, $2.

PEARS.— Angouleme:
1st, W. H. Derby, $3; 2d, J. L. Bird, $2; 3d, F. W. Damon, $1.
Clairgeau:
1st, W. H. Derby, $3; 2d, F. W. Damon, $2; 3d, C. F. Curtis, $1.
Comice:
1st, J. L. Bird, $3.
Dana's Hovey:
1st, W. G. Kendall, $3; 2d, G. V. Fletcher, $2; 3d, W. Heustis & Son, $1.
Diel:
1st, F. W. Damon, $3; 2d, J. L. Bird, $2; 3d, E. B. Wilder, $1.
Fulton:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, C. F. Curtis, $2; 3d, J. L. Bird, $1.
Hardy:
1st, C. F. Curtis, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Howell:
1st, W. A. Green, $3.
Josephine of Malines:
1st, J. B. Shurtleff, Jr., $3; 2d, J. L. Bird, $2.
Lawrence:
1st, F. W. Damon, $3; 2d, J. L. Bird, $2; 3d, Wilfrid Wheeler, $1.
Louise Bonne of Jersey:
1st, J. L. Bird, $3; 2d, Hittinger Fruit Co., $2; 3d, E. B. Wilder, $1.
Marie Louise:
2d, F. W. Damon, $2.
Merriam:
1st, Hittinger Fruit Co., $3; 2d, C. F. Curtis, $2; 3d, J. L. Bird, $1.

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Onondaga:
1st, J. L. Bird, $3; 2d, C. B. Travis, $2; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $1.
Paradise of Autumn:
1st, William Milman, $3; 2d, E. B. Wilder, $2.
Seckel:
1st, William Milman, $3; 2d, W. G. Kendall, $2; 3d, E. R. Teele, $1.
Souvenir du Congres:
1st, S. L. Howe, $3; 2d, W. G. Kendall, $2; 3d, C. F. Curtis, $1.
Superfin:
1st, E. B. Wilder, $3; 2d, F. W. Damon, $2; 3d, J. L. Bird, $1.
Urbaniste:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, W. G. Kendall, $2; 3d, C. F. Curtis, $1.
Any other variety:
1st, Hittinger Fruit Co., Bartlett, $3; 2d, D. H. Locke, Bartlett, $2; 3d, F. H. Evans, Flemish Beauty, $1.

QUINCES.— Any variety:
1st, G. V. Fletcher, Orange, $3; 2d, G. G. Barker, Orange, $2.

PEACHES.— Coolidge's Favorite:
1st, G. V. Fletcher, $3.
Crawford's Early:
1st, H. A. Clark, $3; 2d, D. L. Fiske, $2; 3d, S. H. Warren, $1.
Crosby:
2d, D. L. Fiske, $2.
Foster:
1st, J. L. Bird, $3.
Oldmixon Freestone:
1st, G. V. Fletcher, $3; 2d, J. S. Chase, $2.
Stump the World:
1st, S. H. Warren, $3; 2d, D. L. Fiske, $2.
Any other variety:
1st, D. L. Fiske, Elberta, $3; 2d, W. Heustis & Son, Elberta, $2; 3d, Hittinger Fruit Co., Elberta, $1.

PLUMS.— Coe's Golden Drop:
1st, Elliott Moore, $3; 2d, Charles Scully, $2.
Imperial Gage:
1st, Elliott Moore, $3.
Lombard:
1st, W. P. Hutchinson, $3; 2d, Elliott Moore, $2; 3d, H. R. Kinney, $1.
Reine Claude de Bavay:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $2; 2d, Elliott Moore, $1.
Yellow Egg:
1st, G. V. Fletcher, $2.

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Any other variety:
1st, Elliott Moore, Pond's Seedling, $3; 2d, H. R. Kinney, Shipper's Pride, $2; 3d, W. P. Hutchinson, Grand Duke, $1.

JAPANESE PLUMS.— Any variety:
1st, D. L. Fiske, Wickson, $3; 2d, W. P. Hutchinson, Chabot, $2; 3d, E. L. Lewis, Wickson, $1.

FOREIGN GRAPES.— Two bunches of Black Alicante:
1st, T. W. Head, $5.

Two bunches of any other Black variety:
1st, T. W. Head, Black Hamburg, $5.

Two bunches of Muscat of Alexandria:
1st, T. W. Head, $5.

NATIVE GRAPES.— Six bunches of Brighton:
1st, G. V. Fletcher, $3; 2d, J. S. Chase, $2; 3d, C. W. Libby, $1.

Campbell's Early:
1st, Linus Darling, $3.

Delaware:
1st, J. S. Chase, $3; 2d, W. G. Kendall, $2; 3d, W. J. Clemson, $1.

Green Mountain:
1st, W. G. Kendall, $3; 2d, E. L. Lewis, $2.

Herbert:
1st, C. W. Libby, $3; 2d, J. S. Chase, $2.

Lindley:
1st, J. S. Chase, $3; 2d, C. W. Libby, $2.

Massasoit:
1st, J. S. Chase, $3.

Moore's Early:
1st, E. L. Lewis, $3; 2d, F. W. Damon, $2; 3d, G. V. Fletcher, $1.

Niagara:
1st, E. R. Farrar, $3; 2d, J. S. Chase, $2; 3d, H. A. Clark, $1.

Pocklington:
1st, H. R. Kinney, $3; 2d, J. S. Chase, $2; 3d, S. H. Warren, $1.

Prentiss:
1st, J. S. Chase, $3; 2d, F. W. Damon, $2.

Vergennes:
1st, J. S. Chase, $3.

Wilder:
1st, J. S. Chase, $3.

Any other variety:
1st, J. S. Chase, Poughkeepsie Red, $3; 2d, E. L. Lewis, Eaton, $2; 3d, C. W. Libby, Moore's Diamond, $1.

Gratuities: —

Hittinger Fruit Co., Fruit Display, $3.
M. W. Chadbourne, " " $1.

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Jackson Dawson, Collection of foreign and native species of Malus, Pyrus, and Vitis Fruits, a Silver Medal.

Chrysanthemum Show.

November 9, 10, 11, 12.

Benjamin V. French Fund.

Apples.— Baldwin:
1st, Miss A. M. Whiting, $3; 2d, Mrs. J. L. Whiting, $2; 3d, J. Bauernfeind, $1.
Rhode Island Greening:
1st, Mrs. A. E. Underwood, $3; 2d, A. E. Hartshorn, $2; 3d, E. M. Bruce, $1.

Society's Prizes.

Apples.— Danvers Sweet:
1st, Rev. T. L. Dean, $3; 2d, B. P. Ware, $2.
Fameuse:
1st, E. E. Cole, $3.
Hunt Russet:
1st, C. F. Boyden, $3; 2d, W. H. Teele, $2; 3d, G. F. Wheeler, $1.
Jacobs Sweet:
1st, B. P. Ware, $3.
Lady Sweet:
1st, E. E. Cole, $3.
McIntosh:
1st, C. C. Shaw, $3; 2d, C. M. Handley, $2; 3d, G. V. Fletcher, $1.
Northern Spy:
1st, E. E. Cole, $3; 2d, C. F. Boyden, $2; 3d, A. E. Hartshorn, $1.
Roxbury Russet:
1st, C. F. Boyden, $3; 2d, E. M. Bruce, $2; 3d, A. M. Knowlton, $1.
Tolman Sweet:
1st, E. E. Cole, $3; 2d, C. F. Boyden, $2; 3d, Mrs. A. E. Underwood, $1.
Tompkins King:
1st, H. A. Stevens Co., $3; 2d, E. E. Cole, $2; 3d, C. C. Shaw, $1.
Any other variety:
1st, C. F. Boyden, Bellflower, $3; 2d, Mrs. Chapman, New York Pippin, $2; 3d, M. Hemenway, Fallawater, $1.
Pears.— Angouleme:
1st, W. H. Derby, $3; 2d, F. W. Damon, $2.

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Anjou:

1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, William Milman, $2; 3d, J. Bauernfeind, $1.

Bosc:

1st, C. B. Travis, $3; 2d, W. H. Derby, $2; 3d, G. V. Fletcher, $1.

Clairgeau:

1st, C. F. Curtis, $3; 2d, W. H. Derby, $2; 3d, F. W. Damon, $1.

Comice:

1st, E. W. Wood, $3; 2d, J. L. Bird, $2; 3d, G. V. Fletcher, $1.

Dana's Hovey:

1st, W. G. Kendall, $3; 2d, E. W. Wood, $2; 3d, F. W. Damon, $1.

Diel:

1st, F. W. Damon, $3; 2d, C. E. Swain, $2.

Josephine of Malines:

1st, J. L. Bird, $3; 2d, J. B. Shurtleff, Jr., $2.

Lawrence:

1st, E. B. Wilder, $3; 2d, J. Bauernfeind, $2; 3d, Mrs. Nicholson, $1.

Vicar:

1st, E. B. Wilder, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2; 3d, Mrs. Blackbird, $1.

Any other variety:

1st, C. E. Swain, Marie Louise, $3; 2d, William Milman, Mount Vernon, $2; 3d, J. L. Bird, Kingsessing, $1.

QUINCES.— Any variety:

1st, I. H. Locke, Apple, $3; 2d, G. V. Fletcher, Orange, $2; 3d, J. L. Bird, Orange, $1.

CRANBERRIES.— Half-peck:

1st, H. J. Thayer, Mathews, $3; 2d, H. J. Thayer, McFarlins, $2; 3d, R. A. Everson, Hockanums, $1.

WILFRID WHEELER,
CHARLES F. CURTIS,
J. WILLARD HILL,
} *Committee on Fruits.*

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REPORT OF THE COMMITTEE ON VEGETABLES FOR THE YEAR 1905.

BY WARREN W. RAWSON, CHAIRMAN.

Your committee has been greatly pleased and encouraged the past season by the renewal of interest that has been shown in the vegetable department, thereby raising the exhibitions to a much higher standard than in former years. The reduction in the amount appropriated for premiums some two or three years ago was a very discouraging feature and it has been hard to overcome it, but, by the earnest effort of your committee and by the encouragement for the future that we now have, we think this department will advance to be what it has never been before, one of the leading ones of this Society.

The object of the Society is to advance horticulture, agriculture, and floriculture in the State of Massachusetts. It is not to try to advance more in one department than in another nor to show any more favors to one than to another, but to try to advance them all by making such appropriations for premiums as will in every case help to obtain the desired result.

The agriculture of Massachusetts has increased nearly 50 per cent in the last fifteen years due largely to the great advancement that has been made in the vegetable or market gardening department. When Massachusetts stands at the head in the amount of production of vegetables per acre of all the states in the Union and also for the best quality produced, why should not the exhibits at our exhibitions be up to the standard, and why should not this Society share in the advance that has been made in this direction? When the vegetable products of the state equal more in value than her fruits, plants and flowers combined why is not this department worthy of the first and best consideration, especially when we consider that by far the greater part of the vegetables produced in the state are grown in the vicinity of Boston?

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With the use of glass it has been found that plants and flowers can be brought to perfection and so the vegetable growers have found that with glass a perfect crop can be produced. Within the past ten years at least 100 houses have been built each year in this state and by the use of this glass a great deal has been accomplished. Many varieties have been improved and some new ones added.

Much can be done by the Massachusetts Horticultural Society in having these products displayed, and some inducements must be made to the growers to get them to show their goods at our exhibitions.

Your committee will do all in its power to bring this about and we are willing to take hold and assist all other departments in order to bring this Society up to where it belongs, the foremost in the land for the quality of its exhibitions.

We believe in offering good prizes, not a large number of them, but of sufficient size to enable the exhibitor to make a creditable display. We find that the past year many collections have been exhibited which were very creditable to the Society and also to the exhibitor. We think more attention should be given in this direction and in our next schedule you will find that we have done so.

Some changes have been made in the time of the exhibitions with an idea of holding the shows at a time when the special crops are in their prime or in season. We have also lessened the number of exhibitions by one. We offered for premiums the past year in our schedule about $960.00. The Society gave us $900.00 and we have awarded $857.00 or $43.00 less than the appropriation.

For the coming year by the earnest effort of your committee we have obtained the amount of $1200.00 for which we are very grateful, and we will do our best to make the vegetable exhibitions equal to those of any other department of the Society, always bearing in mind that, as Massachusetts in the production of vegetables stands first in the land, so shall the Massachusetts Horticultural Society stand in the character of its exhibitions.

It is with sincere regret that we have to record in this report the death of a member of our committee, Joshua C. Stone, who died at his home in Watertown, October 2, 1905, at the age of 70 years.

He was one of the most widely known and respected market

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gardeners in New England and had been closely identified with the vegetable interests of the Society since his election as a member in 1894.

He was a member of the Boston Market Gardeners' Association ever since its foundation in 1886 and will always be remembered by the members of that organization as one of its most enthusiastic members in everything tending to the best interests of that society.

He had served as a member of the Vegetable Committee of the Massachusetts Horticultural Society for the past six years and was ever a help to his fellow members; his wide experience and geniality making it a pleasure to serve with him.

In his business relations he was always the soul of honor and may his life always serve as an example to the members of this Society. It is by the influence of such men as he that the market garden business of today stands on so high a plane.

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

1905.

February 11.

Salsify.— Twelve specimens:
1st, Ed. Parker, $3; 2d, A. E. Hartshorn, $2.

Radishes.— Four bunches:
1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, Hittinger Fruit Co., $1.

Cucumbers.— Pair of any variety:
1st, Walter Warburton, $3.

Cauliflowers.— Four specimens:
1st, F. E. Coolidge, $3; 2d, C. M. Handley, $2; 3d, W. H. Teele, $1.

Celery.— Four roots:
1st, Ed. Parker, $3; 2d, W. Heustis & Son, $2; 3d, W. Heustis & Son, $1.

Lettuce.— Four heads:
1st, W. W. Rawson, $3; 2d, W. W. Rawson, $2; 3d, G. D. Moore, $1.

Mushrooms.— Twenty-four specimens:
1st, H. A. Stevens Co., $3.

Parsley.— Two quarts.
1st, Hittinger Fruit Co., $2; 2d, Walter Warburton, $1.

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TOMATOES.— Twelve specimens:
1st, E. A. Clark, $3.

Gratuities: —

Mrs. A. W. Blake, Rhubarb, $1.
Ed. Parker, Collection, $1.

SPRING EXHIBITION.

MARCH 23, 24, 25, 26.

William J. Walker Fund.

RADISHES.— Four bunches of Turnip Rooted:
1st, Arthur Nixon, $3; 2d, A. E. Hartshorn, $2; 3d, W. W. Rawson, $1.
CUCUMBERS.— Pair:
1st, W. W. Rawson, $3; 2d, Walter Warburton, $2.
DANDELIONS.— Peck:
1st, A. E. Hartshorn, $3.
LETTUCE.— Four heads:
1st, W. W. Rawson, $3; 2d, Hittinger Fruit Co., $2; 3d, W. E. Lenk, $1.
RHUBARB.— Twelve stalks:
1st, H. R. Kinney, $3.
MUSHROOMS.— Twelve specimens:
1st, H. R. Kinney, $3; 2d, A. W. Crockford, $2; 3d, H. A. Stevens Co., $1.
PARSLEY.— Four quarts:
1st, Hittinger Fruit Co., $3; 2d, W. E. Lenk, $2.

Gratuity: —

M. W. Chadbourne, Artichokes, $1.

APRIL 29.

William J. Walker Fund.

ASPARAGUS.— Four bunches, twelve stalks each:
1st, Ed. Parker, $3.
CUCUMBERS.— Pair of White Spine:
1st, C. H. Metcalf, $3; 2d, Varnum Frost, $2; 3d, W. W. Rawson, $1.
Any other variety:
1st, E. M. Bruce, $3.
SPINACH.— Peck:
1st, Aaron Low, Thick Leaf, $3; 2d, Aaron Low, Victoria, $2; 3d, A. E. Hartshorn, $1.

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DANDELIONS.— Peck:
1st, J. B. Shurtleff, Jr., $3; 2d, Hittinger Fruit Co., $2; 3d, A. E. Hartshorn, $1.
RHUBARB.— Twelve stalks, open culture:
1st, Hittinger Fruit Co., $3; 2d, J. C. Stone, $2; 3d, Ed. Parker, $1.
LETTUCE.— Four heads:
1st, Hittinger Fruit Co., $3; 2d, W. W. Rawson, $2; 3d, W. W. Rawson, $1.
RADISHES.— Four bunches:
1st, Hittinger Fruit Co., $2; 2d, Ed. Parker, $1.

Gratuity: —

Ed. Parker, Celery and Salsify, $1.

RHODODENDRON EXHIBITION.

JUNE 3 AND 4.

Theodore Lyman Fund.

BEETS.— Twelve specimens:
1st, J. C. Stone, $3.
RADISHES.— Four bunches:
1st, A. E. Hartshorn, $3; 2d, Ed. Parker, $2.
ASPARAGUS.— Four bunches, twelve stalks each:
1st, Ed. Parker, $3; 2d, J. C. Stone, $2; 3d, A. E. Hartshorn, $1.
CUCUMBERS.— Pair:
1st, G. D. Moore, $3; 2d, Walter Warburton, $2.
LETTUCE.— Four heads:
1st, G. D. Moore, $3; 2d, W. Heustis & Son, $2; 3d, Walter Warburton, $1.
RHUBARB.— Twelve stalks, open culture:
1st, J. B. Shurtleff, Jr., $3; 2d, Ed. Parker, $2; 3d, A. E. Hartshorn, $1.
SPINACH.— Peck:
1st, W. J. Clemson, $2; 2d, G. D. Moore, $1.
Collection of Vegetables, not less than four varieties, decorative arrangement to be considered:
1st, W. J. Clemson, $5; 2d, Ed. Parker, $3.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 24 AND 25.

BEETS.— Twelve Turnip Rooted, open culture:
1st, W. W. Rawson, $3; 2d, W. Heustis & Son, $2; 3d, A. E. Hartshorn, $1.

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ONIONS.— Twelve specimens:
1st, W. W. Rawson, $3; 2d, J. J. Lyons, $2; 3d, Ed. Parker, $1.
CUCUMBERS.— Four specimens:
1st, G. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, Ed. Parker, $1.
LETTUCE.— Four heads:
1st, E. L. Lewis, Deacon, $3; 2d, W. W. Rawson, Black Seed, $2; 3d, E. L. Lewis, Immensity, $1.
PEAS.— Half-peck, any variety:
1st, E. L. Lewis, $3; 2d, William Whitman, $2; 3d, I. E. Coburn, $1.
CARROTS.— Four bunches:
1st, A. E. Hartshorn, $3; 2d, W. W. Rawson, $2.
CABBAGES.— Four specimens:
1st, W. W. Rawson, $3; 2d, G. D. Moore, $2; 3d, W. Heustis & Son, $1.
Collection of Vegetables, not less than six varieties, decorative arrangement to be considered:
1st, W. W. Rawson, $5; 2d, E. L. Lewis, $4; 3d, W. J. Clemson, $3.

JULY 8 AND 9.

ONIONS.— Twelve specimens:
1st, Ed. Parker, $3; 2d, W. W. Rawson, $2; 3d, J. J. Lyons, $1.
SQUASHES.— Summer, Long Warted, four specimens:
1st, A. E. Hartshorn, $3.
CABBAGES.— Four specimens:
1st, G. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, W. Heustis & Son, $1.
BEANS.— Half-peck of Wax:
1st, W. W. Rawson, $3; 2d, Ed. Parker, $2; 3d, W. J. Clemson, $1.
Half-peck of Green:
1st, G. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, A. E. Hartshorn, $1.
PEAS.— Half-peck, late varieties:
1st, E. L. Lewis, $3; 2d, Joseph Thorpe, Gradus, $2; 3d, Joseph Thorpe, Alderman, $1.
LETTUCE.— Four heads:
1st, W. W. Rawson, $3; 2d, Joseph Thorpe, $2; 3d, E. L. Lewis, $1.
BEETS.— Twelve specimens:
1st, W. W. Rawson, $3; 2d, W. Heustis & Son, $2; 3d, G. D. Moore, $1.
CUCUMBERS.— Four specimens:
1st, G. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, B. Lincoln, $1.
Collection of Vegetables, not less than six varieties, decorative arrangement to be considered:
1st, W. W. Rawson, $5; 2d, W. J. Clemson, $4.

JULY 22.

LETTUCE.— Four heads:
1st, Joseph Thorpe, Standwell, $2; 2d, E. L. Lewis, New York, $1.

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BEANS.— Four quarts, any variety:
1st, Ed. Parker, Wardwell's Kidney Wax, $3; 2d, Mrs. L. M. Towle, Horticultural Wax, $2; 3d, E. L. Lewis, Stringless Greenpod, $1.
PEAS.— Four quarts, any variety:
1st, E. L. Lewis, Improved Stratagem, $3; 2d, Joseph Thorpe, Exhibition, $2; 3d, E. L. Lewis, Carter's Daisy, $1.
SWEET CORN.— Twelve ears, any variety:
1st, G. D. Moore, Crosby's Early, $3; 2d, E. L. Lewis, Cory, $2; 3d, Walter Warburton, Cory's Early, $1.
ONIONS.— Twelve specimens, any variety:
1st, Ed. Parker, Silverskin, $3; 2d, Ed. Parker, White Portugal, $2; 3d, E. L. Lewis, Silverskin, $1.
TOMATOES.— Twelve specimens, open culture:
1st, Joseph Thorpe, Earliana, $3; 2d, Walter Warburton, Earliana, $2; 3d, Joseph Thorpe, Early Jewell, $1.

AUGUST 5.

SQUASHES.— Marrow, three specimens:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2.
CABBAGES.— Four specimens:
1st, W. Heustis & Son, $3; 2d, W. Heustis & Son, $2; 3d, A. E. Hartshorn, $1.
BEANS.— Horticultural, four quarts in pod:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2.
SWEET CORN.— Twelve ears:
1st, E. L. Lewis, $3; 2d, A. E. Hartshorn, $2; 3d, Joseph Thorpe, $1.
TOMATOES.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, W. Heustis & Son, $2; 3d, Joseph Thorpe, $1.
ONIONS.— Twelve specimens, dry:
1st, E. L. Lewis, Danvers, $3; 2d, E. L. Lewis, Prize Taker, $2; 3d, E. L. Lewis, White, $1.
CARROTS.— Twelve specimens:
1st, E. L. Lewis, $2; 2d, J. J. Lyons, $1.

AUGUST 12.

CARROTS.— Twelve specimens:
1st, E. L. Lewis, Chantenay, $3; 2d, Ed. Parker, Half-long, $2; 3d, E. L. Lewis, Intermediate, $1.
ENDIVE.— Four specimens:
1st, W. J. Clemson, De Ruffec, $3; 2d, W. J. Clemson, Batavian, $2; 3d, W. J. Clemson, White Curled, $1.
SWEET CORN.— Twelve ears:
1st, A. E. Hartshorn, $3; 2d, W. J. Clemson, $2; 3d, E. L. Lewis, $1.

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EGG PLANTS.— Four specimens:
1st, Ed. Parker, $3; 2d, W. J. Clemson, $2; 3d, A. E. Hartshorn, $1.
TOMATOES.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, Walter Warburton, $2; 3d, Ed. Parker, $1.
ONIONS.— Twelve specimens, dry:
1st, J. J. Lyons, $3; 2d, Walter Warburton, $2; 3d, E. L. Lewis, $1.
SQUASHES.— Marrow:
1st, W. Heustis & Son, $3; 2d, A. E. Hartshorn, $2; 3d, P. Hurley, $1.

Gratuity: —

J. J. Lyons, Carrots, $1.

AUGUST 19.

POTATOES.— Twelve specimens of any variety:
1st, E. L. Lewis, Early Northern, $3; 2d, Mrs. J. L. Gardner, Beauty, $2; 3d, E. L. Lewis, Hebron, $1.
ONIONS.— Twelve specimens:
1st, E. L. Lewis, Danvers, $3; 2d, G. D. Moore, Danvers, $2; 3d, E. L. Lewis, Prize Taker, $1.
CELERY.— Four roots, any variety:
1st, Joseph Thorpe, $3; 2d, P. Hurley, $2; 3d, E. L. Lewis, $1.
LETTUCE.— Four heads:
1st, E. L. Lewis, Immensity, $3; 2d, E. L. Lewis, Deacon, $2.
BEANS.— Two quarts, shelled:
1st, E. L. Lewis, $3; 2d, Joseph Thorpe, $2; 3d, A. E. Hartshorn, $1.
SWEET CORN.— Twelve ears of any variety:
1st, Ed. Parker, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
TOMATOES.— Twelve specimens:
1st, Joseph Thorpe, Jewell, $3; 2d, Joseph Thorpe, Earliana, $2; 3d, Wilfrid Wheeler, Stone, $1.
PEPPERS.— Twelve specimens:
1st, Ed. Parker, Chinese Giant, $3; 2d, E. L. Lewis, Chinese Giant, $2; 3d, Ed. Parker, Ruby King, $1.
Collection of Vegetables, not less than four varieties, decorative arrangement to be considered:
1st, E. L. Lewis, $5.

AUGUST 26.

MELONS.— Four specimens:
1st, E. L. Lewis, Montreal, $3; 2d, E. L. Lewis, Rocky Ford, $2; 3d, Ed. Parker, Emerald Gem, $1.
CABBAGES.— Three of any variety, trimmed:
1st, Ed. Parker, $3; 2d, A. E. Hartshorn, $1.
CELERY.— Four roots:
1st, Ed. Parker, $3; 2d, P. Hurley, $2; 3d, Joseph Thorpe, $1.

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BEANS.— Two quarts of Lima:
1st, W. J. Clemson, Burpee's $3; 2d, W. J. Clemson, Dreer's, $2; 3d, A. E. Hartshorn, $1.
NATIVE MUSHROOMS.— Named collection of not less than five edible varieties:
1st, S. S. Crosby, $3; 2d, Boston Mycological Club, $2.
TOMATOES.— Twelve specimens:
1st, Arthur Nixon, $3; 2d, W. J. Clemson, $2; 3d, Joseph Thorpe, $1.
ONIONS.— Twelve specimens:
1st, E. L. Lewis, Danvers, $3; 2d, G. D. Moore, Prize Taker, $2; 3d, E. L. Lewis, Prize Taker, $1.
SQUASHES:
1st, Ed. Parker, Marrow, $3; 2d, W. Heustis & Son, Marrow, $2; 3d, A. E. Hartshorn, $1.
Collection of Vegetables, not less than four varieties, decorative arrangement to be considered:
1st, Ed. Parker, $5; 2d, E. L. Lewis, $3.

ANNUAL EXHIBITION.

SEPTEMBER 14, 15, 16, 17.

CARROTS.— Twelve Long Orange:
1st, Ed. Parker, $3; 2d, E. L. Lewis, $2; 3d, H. R. Kinney, $1.
Twelve Intermediate:
1st, H. R. Kinney, $3; 2d, Charles Scully, $2; 3d, Ed. Parker, $1.
POTATOES.— Twelve Hebron:
1st, H. R. Kinney, $3; 2d, G. F. Wheeler, $2; 3d, E. L. Lewis, $1.
Twelve Rose:
1st, E. L. Lewis, $3.
Twelve of any other variety:
1st, H. R. Kinney, Somerset, $3; 2d, W. J. Clemson, Delaware, $2; 3d, J. G. Junier, $1.
SALSIFY.— Twelve specimens:
1st, P. Hurley, $3; 2d, Ed. Parker, $2; 3d, W. J. Clemson, $1.
TURNIPS.— Twelve Flat:
1st, E. L. Lewis, $3; 2d, G. F. Wheeler, $2; 3d, T. W. Head, $1.
Twelve Swedish:
1st, Charles Scully, $3; 2d, Ed. Parker, $2; 3d, Joseph Thorpe, $1.
ONIONS.— Twelve Danvers:
1st, E. L. Lewis, $3; 2d, J. B. Shurtleff, Jr., $2; 3d, A. E. Hartshorn, $1.
Twelve Red:
1st, E. L. Lewis, $3; 2d, Ed. Parker, $2; 3d, A. E. Hartshorn, $1.

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Twelve White:
1st, E. L. Lewis, $2; 2d, Ed. Parker, $1.

SQUASHES.— Three Bay State:
1st, E. L. Lewis, $3; 2d, G. F. Wheeler, $2; 3d, A. E. Hartshorn, $1.
Three Hubbard:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2; 3d, G. F. Wheeler, $1.
Three Hybrid Turban:
1st, E. L. Lewis, $3; 2d, G. F. Wheeler, $2; 3d, A. E. Hartshorn, $1.
Three Marrow:
1st, E. L. Lewis, $3; 2d, Ed. Parker, $2; 3d, W. Heustis & Son, $1.

CUCUMBERS.— Pair of White Spine:
1st, H. A. Vickery, $4; 2d, A. E. Hartshorn, $3; 3d, W. J. Clemson, $2.
Pair of any other variety:
1st, A. E. Hartshorn, $3; 2d, Joseph Thorpe, $2.

MELONS.— Four specimens:
1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.

WATERMELONS.— Two specimens:
1st, Ed. Parker, $3; 2d, Ed. Parker, $2; 3d, Joseph Thorpe, $1.

BRUSSELS SPROUTS.— Half-peck:
1st, A. E. Hartshorn, $3; 2d, W. J. Clemson, $2; 3d, T. W. Head, $1.

CABBAGES.— Three Drumhead, trimmed:
1st, A. E. Hartshorn, $3; 2d, T. W. Head, $2; 3d, Ed. Parker, $1.
Three Savoy, trimmed:
1st, A. E. Hartshorn, $3; 2d, Ed. Parker, $2; 3d, T. W. Head, $1.

CAULIFLOWERS.— Four specimens:
1st, W. H. Teele, $4; 2d, DeSouza Bros., $3; 3d, C. M. Handley Estate, $2.

CELERY.— Best kept during the exhibition, four roots of Paris Golden:
1st, E. L. Lewis, $5; 2d, W. Heustis & Son, $3; 3d, P. Hurley, $2.
Any other variety:
1st, Arthur Nixon, $5; 2d, Joseph Thorpe, $3; 3d, A. E. Hartshorn, $2.

ENDIVE.— Four specimens:
1st, Vincent Buitta, $3; 2d, Vincent Buitta, $2; 3d, Vincent Buitta, $1.

LETTUCE.— Four heads:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2; 3d, T. W. Head, $1.

PARSLEY.— Two quarts:
1st, A. E. Hartshorn, $2; 2d, E. L. Lewis, $1.

SWEET CORN.— Twelve ears:
1st, A. E. Hartshorn, $3; 2d, G. F. Wheeler, $2; 3d, E. L. Lewis, $1.

EGG PLANTS.— Four Round Purple:
1st, A. E. Hartshorn, $3; 2d, Mrs C. C. Converse and Mrs. Lester Leland, $2; 3d, Ed. Parker, $1.

TOMATOES.— Twelve Aristocrat:
1st, Ed. Parker, $3; 2d, Joseph Thorpe, $2; 3d, W. J. Clemson, $1.

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Twelve Stone:
1st, Joseph Thorpe, $3; 2d, E. L. Lewis, $2; 3d, Ed. Parker, $1.
Twelve of any other variety:
1st, Mrs. E. M. Gill, $3; 2d, E. L. Lewis, $2; 3d, Elliott Moore, $1.
PEPPERS.— Twelve specimens of Squash:
1st, E. L. Lewis, $3; 2d, H. R. Kinney, $2; 3d, Ed. Parker, $1.
Any other variety:
1st, E. L. Lewis, $3; 2d, Ed. Parker, $2; 3d, J. B. Shurtleff, Jr., $1.
CULINARY HERBS, GREEN.— Collection, named:
1st, Arthur Nixon, $3; 2d, Ed. Parker, $2.
Collection of Vegetables, not less than ten varieties, decorative arrangement to be considered:
1st, E. L. Lewis, $10; 2d, Vincent Buitta, $8; 3d, Ed. Parker, $5.

Gratuities: —

J. J. H. Gregory, Potatoes, $1.
W. W. Rawson, Collection, $3.

CHRYSANTHEMUM SHOW.

NOVEMBER 9, 10, 11, 12.

Special Prizes.

CELERY.— Eight roots, commercial grown:
1st, Ed. Parker, a Silver Medal; 2d, E. L. Lewis, a Bronze Medal.

Regular Prizes.

PARSNIPS.— Twelve specimens of Long Smooth:
1st, W. J. Clemson, $3; 2d, W. H. Teele, $2; 3d, A. E. Hartshorn, $1.
Twelve specimens of Hollow Crown:
1st, W. J. Clemson, $3; 2d, W. W. Rawson, $2; 3d, W. H. Teele, $1.
SALSIFY.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, P. Hurley, $2; 3d, Vincent Buitta, $1.
CUCUMBERS.— Pair:
1st, W. W. Rawson, $3.
CABBAGES.— Three Red, trimmed:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2.
Three Drumhead, trimmed:
1st, A. E. Hartshorn, $3; 2d, Mrs. J. L. Gardner, $2.
Three Savoy, trimmed:
1st, Mrs. J. L. Gardner, $3; 2d, A. E. Hartshorn, $2; 3d, Ed. Parker, $1.

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BRUSSELS SPROUTS.— Half-peck:
1st, A. E. Hartshorn, $3; 2d, Mrs. J. L. Gardner, $2.
CAULIFLOWERS.— Four specimens:
1st, E. R. Teele, $3; 2d, C. M. Handley, $2; 3d, E. L. Lewis, $1.
CELERY.— Four roots, Pascal, best kept:
1st, W. Heustis & Son, $5; 2d, Ed. Parker, $3; 3d, A. E. Hartshorn, $2; 4th, Arthur Nixon, $1.
Any other variety:
1st, Arthur Nixon, $5; 2d, Ed. Parker, $3; 3d, A. E. Hartshorn, $2; 4th, W. J. Clemson, $1.
ENDIVE.— Four specimens:
1st, Vincent Buitta, $3; 2d, Vincent Buitta, $2; 3d, E. L. Lewis, $1.
LETTUCE.— Four heads, best kept:
1st, W. W. Rawson, $5; 2d, Arthur Nixon, $3; 3d, A. E. Hartshorn, $2; 4th, G. D. Moore, $1.
LEEK.— Twelve specimens:
1st, Mrs. Alice Warburton, $2; 2d, Ed. Parker, $1.
CORN.— Yellow or Field, twenty-five ears, traced:
1st, Elliott Moore, $3; 2d, A. F. Stevens, $2; 3d, E. L. Lewis, $1.
TOMATOES.— Twelve specimens:
1st, E. D. Jordan, $3; 2d, Ed. Parker, $2; 3d, E. L. Lewis, $1.
Collection of Vegetables, not less than ten varieties, decorative arrangement to be considered:
1st, E. L. Lewis, $8; 2d, Ed. Parker, $5; 3d, Vincent Buitta, $4.

WARREN W. RAWSON,
WARREN H. HEUSTIS,
} *Committee on Vegetables.*

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COL. FREDERICK MASON'S FARM TAUNTON.

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REPORT OF THE COMMITTEE ON GARDENS FOR THE YEAR 1905.

BY OAKES AMES, CHAIRMAN.

During the year 1905 the Committee on Gardens received ten entries for the prizes of the Society. Of these entries six called for the inspection of gardens devoted to herbaceous flowers or vegetables, two for an examination of tree plantations, and two for visits to greenhouses. In addition to its regular work, the committee accepted an invitation to witness a demonstration at Jamaica Plain of power spraying for the destruction of the gypsy and brown-tail moth caterpillars.

In January the Board of Trustees passed a vote requesting the committee to consider the expediency of holding in the City of Boston a field demonstration to stimulate interest in the extermination of insect pests. At the same meeting it was voted that the committee should consider the advisability of offering prizes for the renewal of neglected apple orchards. In accordance with these suggestions a special meeting was held and the propositions of the Board were carefully considered. Though favorable to these propositions, the Committee on Gardens has not found it practicable to carry them into effect during the present year.

The following is a record in detail of the visits made in 1905.

George F. Fabyan's Greenhouse, Brookline.

The first visit was made March 7 to the estate of George F. Fabyan at Brookline to inspect his greenhouse devoted to the cultivation of choice plants. The greenhouse is 120 feet long by twenty feet wide and is partitioned into four sections. In the first section, palms, ferns and other foliage plants, together with many orchids are grown. In the second section was a display of cycla-

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men, cinerarias, azaleas, and acacias. The third and fourth sections were devoted chiefly to roses and carnations. The visitors were favorably impressed by the beauty and masterly grouping of the plants,— clear evidence of the ability of the head-gardener, Mr. James Stuart.

Spraying Demonstration by the Boston Park Department.

By invitation of Mr. John A. Pettigrew, Superintendent of the Boston Park Department, the committee, on the afternoon of May 16th, attended a preliminary demonstration of power spraying for the destruction of the gypsy and brown-tail moth caterpillars. This demonstration took place in the Forest Hills Parkway. A grove of the highest trees was chosen for the experiment, and over the tops of these, some of them probably sixty feet high, spray was easily thrown by means of a hose sprayer held by a man standing on the ground. With the aid of ladders, an area of from seventy to one hundred feet in diameter was readily drenched with spray. Mr. Pettigrew thinks this promises to be a most effective method for controlling the moth pests. Furthermore, he estimates that forest lands adjoining roadways can be thoroughly sprayed at a cost of about twenty dollars an acre. A practical demonstration on a much larger scale has since been held by the Massachusetts Society for the Promotion of Agriculture in an infested area of ten acres of dense woodland at the junction of Wyoming Avenue and the Ravine Road in the Middlesex Fells region.

Dr. C. S. Minot's Peony Garden, Milton.

On June 15 the committee inspected the peony garden of Dr. Charles S. Minot at Milton, which had been entered in competition for the best garden of peonies, not commercial. Dr. Minot had between 260 and 270 varieties under cultivation, arranged in color areas or squares. Among the varieties in bloom at the time of the committee's visit the following seemed especially deserving of note: Triomphe de l' Exposition de Lille,

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a beautiful form of light pink, introduced into Dr. Minot's collection from Holland in 1900. It is a profuse bloomer and was thought by the members of the committee to be the most desirable variety among the many excellent ones examined. Other blooms of a pink or pale rose color were the Coupe d' Hebe, with saucer-shaped outer petals, and the Charles Sedgwick Minot, a Richardson seedling of much merit. Among the crimson or red varieties were Delachii, a French peony (deep crimson), Eclatante (bright rose), and the anemone-flowered Rubra (magenta), obtained from Mr. T. R. Watson of Plymouth. Unfortunately many plants were not in bloom at the time of the committee's visit, so that the complete range of varieties could not be examined.

The Cherry Hill Nurseries, West Newbury.

On June 21 the committee visited the Cherry Hill Nurseries of Thomas C. Thurlow & Co., at West Newbury, to inspect his system of evergreen hedges grown as windbreaks and shelter for his nursery grounds. These evergreen hedges, composed of white and Norway spruce trees, symmetrically trimmed, are probably the most extensive in this section of the country. They range between 25 and 75 feet in height, and the tallest are allowed to grow naturally. While these hedges serve their purpose well, it is to be questioned whether nursery stock protected by them is not rendered temporarily tender and therefore subject to the rigors of inclement weather when transferred from the nursery to exposed situations.

Mr. Thurlow informed the committee that the hedges formed an exceptionally welcome shelter for birds, and he was of the opinion that the absence of insect pests from his nursery grounds was in a large measure the result of the encouragement of bird life afforded by the hedges.

The F. S. Mosely Estate, Newburyport.

On June 21 the members of the committee availed themselves of an invitation from Mr. Frederick S. Mosely to drive through his

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estate on the banks of the Merrimac River previous to their visit to the Thurlow Nurseries. The drive was a most instructive one and notwithstanding a drenching rain, the committee was able to see some of the extensive plantings which Mr. Mosely has instituted with a view to foresting his estate. Mr. Mosely has kept the old woods and has planted white pine and chestnut.

Professor R. T. Jackson's Peony Garden, Cambridge.

On June 22 the committee visited the peony garden of Prof. Robert T. Jackson at Cambridge. Prof. Jackson's garden is a good example for the treatment of a suburban estate of less than twenty thousand square feet. He had under cultivation at this time 125 varieties of peonies, among them 18 of the notable Richardson seedlings.

Vegetable Garden of the Taunton Insane Hospital.

On July 28 the committee inspected the vegetable garden of the Taunton Insane Hospital, entered in competition for the prize offered for the best vegetable garden.

M. F. Plant's Estate, Groton, Conn.

On August 4 the committee visited the estate of Mr. Morton F. Plant, at Groton, Connecticut, entered for the Hunnewell Triennial Premium and for the prizes offered by the Society for the best herbaceous and vegetable gardens, and for houses of chrysanthemums. This estate is a very good example of what perseverance and industry may do toward the conquest of adverse conditions. A large part of the extensive lawn was made by excavation of solid ledge. The herbaceous garden contained numerous specimens of interesting annuals and perennials, the main part of it forming a border around the formal garden which lies in front of the house. The vegetable garden, located about half a mile from the house, near the farm buildings, covers nearly three acres and at the time of the committee's visit was devoted to a general assortment of vegetables.

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Robert Roulston's Garden, Roxbury.

On August 14 a delegation of the committee inspected the garden of Mr. Robert Roulston, which is situated on the corner of Burrell and Clifton Streets, Roxbury, Mr. and Mrs. Roulston are much interested in the cultivation of flowering plants and with the limited amount of space at their disposal have obtained results deserving of high commendation. This garden illustrates the capabilities of a city yard.

Col. Frederick Mason's Farm, Taunton.

On August 22 the extensive farm of Col. Frederick Mason at Taunton was visited. Of the seventy-four acres comprising the farm, twelve or fifteen are devoted to vegetables. The committee was very favorably impressed by the neatness of the grounds and the excellence of the crops.

M. F. Plant's Chrysanthemum House, Groton, Conn.

In November, two members of the committee went to Groton, Connecticut, to inspect the chrysanthemum house of Mr. Morton F. Plant, which had been entered by the superintendent, Thomas W. Head, as a house of specimen blooms. The house entered was 40 feet long and 20 feet wide and contained about 500 plants on three benches. The middle bench was planted, almost entirely, with the varieties Wm. Duckham and Mrs. Wm. Duckham, and the two side benches with Merza. The plants in the center averaged about seven feet in height, while those on the sides were a little shorter. The flowers were of good size and well developed, and most of the foliage was in good condition.

Special Prize for Small Estate.

The committee wishes to call attention to the Special Prizes of $50.00 and $25.00 offered for the best-kept estates of from

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one to three acres in Massachusetts. There have been no entries for these during the present year.

Prizes and Gratuities have been awarded as follows:

Special Prizes from the John A. Lowell Fund.

For the best House of Chrysanthemums grown for specimen blooms:
First, Morton F. Plant $40 00

Society's Prizes.

For the best Garden of Peonies, not commercial:
First, Dr. Charles S. Minot 30 00
Second, Prof. Robert T. Jackson 20 00
For the best Vegetable Garden:
First, Col. Frederick Mason 30 00
Second, Taunton Insane Hospital 20 00

Gratuities.

George F. Fabyan, Cultural Certificate for splendid condition of Greenhouse.

Boston Park Department, John A. Pettigrew, Superintendent, Honorable Mention for spraying demonstration.

Frederick S. Mosely, for his successful efforts in landscape forestry, Honorable Mention.

Robert Roulston, for his flower garden, Bronze Medal.

Thomas C. Thurlow & Co., for their system of shelter belts of spruces, Honorable Mention.

OAKES AMES,
GEORGE BARKER,
WM. N. CRAIG,
A. F. ESTABROOK,
A. H. FEWKES,
C. W. PARKER,
J. A. PETTIGREW,
WM. P. RICH,
H. P. WALCOTT,
} *Committee on Gardens.*

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FAIRHAVEN MASS. SCHOOL GARDEN IN EARLY SUMMER.

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REPORT OF THE COMMITTEE ON SCHOOL GARDENS AND NATIVE PLANTS FOR THE YEAR 1905.

BY HENRY SAXTON ADAMS, CHAIRMAN.

The year 1905 marks a turning point in the activities of this committee, it being the last year that prizes will be awarded for Children's Herbariums and Native plants, and it has been most successful. In the year to come the committee will be known as the Committee on Children's Gardens, and all our efforts will be directed to the encouragement of gardening among children, which is more directly in line with the objects of the Society.

During the year we offered prizes for school gardens, children's home gardens, children's herbariums, and native plants. The work now dropped is that connected with the last two and we think that we can carry out the purposes of the Society better by this change. While we regret being obliged to make the change we are very glad that the Trustees concur with us in the matter. Early in the year, very soon after our prize circular was distributed, a letter was printed in the Boston Transcript criticising our offering prizes for children's herbariums, the writer complaining that we were encouraging the destruction of native plants. It was thought wise to call together the members of the committee and to ask several members of the Society for the Protection of Native Plants and others interested, to meet with us to discuss the subject. While this gathering was not largely attended it resulted in a decision that we were not encouraging the destruction but rather helping the protection of native plants, and we made no change in our efforts. As it has now been decided to drop this work as too botanical for our Society, nothing further need be said.

On looking over the results already accomplished we felt, that, while we had fostered the school garden movement from the very beginning, we were not having entries from all the gardens in the state and that we were not giving encouragement to more than a

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few of the older gardens. In order to bring our work before the public four articles were written, one on each phase of the work, and published in the Boston Transcript. We also sent out a large number of our circulars to superintendents of schools and others likely to be interested. The results of this canvas were most satisfactory as seen by the increased interest in our work and in the number of entries for prizes.

In order to become better acquainted with the children's garden movement and that we might carry on our work more successfully your chairman visited nearly all the gardens entered for prizes. In this way it was possible for him to better understand the existing conditions as well as to talk with the garden workers. A number of other gardens were also visited; among these were the School of Horticulture at Hartford, Conn., and the School Gardens of Hartford and Amherst, Mass. The great lesson learned was that children's gardens are successfully carried on when under the leadership of an experienced garden director or teacher. No matter how enthusiastically the work is undertaken, without a proper understanding of gardening it is usually a failure, and the movement likely to be given up. In all cases during these visits your chairman was cordially welcomed and usually a conference resulted which was helpful to both. There is a crying need for an institution in this state similar to that at Hartford, Conn., where school garden work can be taught, and it is hoped that such an institution will be started in this vicinity at an early date.

Children's Garden Conference.

With the hope of bringing together those interested in the movement a conference was planned in connection with our Children's Herbarium Exhibition in December and it proved a great success. Invitations were sent out to a number of prominent children's garden workers asking them to come and take part in the exercises. It was very gratifying to find that these invitations were heartily accepted and the success of the conference was assured. A printed announcement was sent out two weeks in advance and suitable reading notices were kindly printed by the leading papers. The

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program included an address of welcome, the announcement of awards for school and home gardens, and seven ten-minute addresses covering various phases of the work. Ample opportunity for discussion followed. A unique feature was a model garden bed illustrated by a practical exercise by a boy gardener and teacher. The Conference was held at Horticultural Hall, Saturday, December 2, at 10 o'clock.

Your chairman called attention to the fact that our Society gave encouragement and financial assistance to the first school garden in the country, which was started in Roxbury as an experiment. We may therefore consider ourselves leaders in the movement. He briefly reviewed the present conditions, told of the aims of the committee, and asked for the coöperation of all interested in order that the work might be carried on to the best advantage. After announcing the awards he introduced the first speaker, Miss Esther F. Hallowell. She spoke in place of Miss Anne Withington who was unfortunately obliged to be out of town. Other addresses followed and nearly every side of the children's garden movement was discussed. As many valuable points were brought out the speakers were asked to furnish abstracts of their addresses and these are given in connection with this report.

School Gardens.

There were twelve entries for prizes for school gardens this year and all but two sent in reports. This is a gain of nine over last year and the largest number ever entered in one year. The season opened up dry and some of the gardens were very discouraging in the beginning, but picked up later, and in most cases gave satisfactory returns.

It is well to call your attention to the classes of school gardens which we find. One connected with the public schools and usually in a dormant and weedy condition during the summer, to be revived again with the opening of school in September. Another, not connected with a regular school, which begins with the opening of spring or as early as possible without interfering with the regular school work of the children and continuing through the summer

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until frost. It is very difficult to manage in a public school a garden which will last through the summer, but in some cases, as at Fairhaven, this is most successfully accomplished. In other places the children who stay at home during the summer work in their gardens while those who go away are obliged to give them up. In large cities the summer school garden is very important and never lacks children; in many places a long waiting list is kept and any vacancies are readily filled. Where the children go away they often have a home garden at their summer home.

The reports of the gardens sent in were very satisfactory and it was difficult to award the prizes. After careful deliberation it was decided to give besides the prizes two honorable mentions. There are six prizes offered next year, three for the established or large gardens and three for new or small gardens. The classification here is rather indefinite but it is our desire to give small and new gardens all the encouragement possible. Whatever we do we are very anxious to put school gardens on a permanent basis and it is with these ideas in mind that we are working. The reports of the directors of the prize gardens will be found further on.

Children's Home Gardens.

During 1904 we offered for the first time three prizes for home gardens and there were five entries. In making up the list for 1905 great hesitancy was felt by the members of the committee as to the advisability of offering more than three prizes. It was decided, however, to try the experiment and the number was increased to ten. When the entries were in it was discovered that we had over two hundred and we found we had made no mistake.

We visited the home gardens as far as possible and found it was very encouraging to the children to do so. We still feel that the children's home garden movement is a very important one and that local organizations and parents should encourage the children to have them. We have increased the prizes for 1906 both in number and in amount and call special attention to the fact that girls receive the same prizes as the boys.

The two principal centers for home gardens this year were at

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Ayer and Reading. Unfortunately the gardens at Ayer were not as well kept up as might be desired, though some were very nice; here again the dry weather discouraged the young gardeners. In Reading the home gardens are encouraged by the Woman's Club and some very prettily gotten up reports were sent in. A larger number entered than were reports received which brings out an important point, namely, that a local organization can sift out the best reports from those entered for our prizes and thus save us a good deal of trouble; it also helps as they are often better judges of the gardens. We want to see a great increase in this work the coming year and feel that our prizes are sufficiently large to attract competitors. It is impossible for the committee to visit a very large number of home gardens, but if those which are the best in any locality are selected, the chances of visiting them increase and in this way the children are encouraged.

Several letters from home garden prize winners follow.

CHILDREN'S HERBARIUMS.

Owing to the great number of herbarium sheets exhibited during 1904 it was necessary to limit the number acceptable from any one child. As a result of this better sheets were brought in, though fewer in number. While in 1904 there were 2316 specimens received but 1815 were awarded prizes. This year only 989 were sent and 780 accepted. Of the 201 rejected 148 were improperly labeled so that had our rules been carried out by the competitors comparatively few would have been rejected. We were also enabled to vary the amount of our awards according to the value of the sheets which was impossible last year owing to the number of sheets accepted and the lack of funds.

The exhibition this year was held in the large hall, on account of the Children's Garden Conference in the lecture hall on Saturday morning. It occupied two-thirds of the hall and was well staged. An exhibit of evergreens from the Chrysanthemum Show added greatly to the appearance of the hall. Prize cards were put on the exhibits at the opening on Friday morning and we believe that the awards were in every way satisfactory to the children.

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Photographs from school and home gardens, collections of insects, and garden reports were also put on the tables, making altogether the most interesting exhibition ever held by our committee. We are very glad that our last exhibition of children's herbariums proved so successful and hope that our children's garden efforts will produce as many horticulturists as the herbarium work did botanists.

Native Plants.

The exhibits of native plants, for no apparent reason, were fewer during the year than last year. The exhibits themselves, however, were good and in every way up to the standard, in some cases even better. It was recommended by your chairman that the awarding of prizes for native plants be taken away from the work of the committee as it is so different from the children's garden work that the committee became divided in interest, those caring for native plants not being interested as deeply in the children's garden movement. It will probably be remembered that the work of awarding prizes for native plants has been at various times part of the work of our committee and at other times under the jurisdiction of a special committee. Your chairman recommended that a new committee be appointed to take charge of the native plant exhibitions. It was decided, however, by the Trustees that the exhibits of native plants were of a botanical nature and should not be continued by the Society. While this is sincerely regretted in some ways it is perhaps for the best and we are very glad to be relieved of the work.

Children's Exhibitions.

Members of the committee visited the two children's garden exhibitions of the Worcester County Horticultural Society at Worcester during the past summer with a view of holding similar exhibitions in Boston. The exhibits were successful in every way and we were glad of the opportunity of studying the methods employed. Due credit should be given to Secretary Hixon of the Worcester Society for his efforts in this work.

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CHILDREN'S GARDEN AT GROTON MASS.

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Carrying out this idea we are offering prizes in our new circular for 1906 and hope to have two successful exhibitions, one in June and one in September.

Looking Forward.

Under the new name of Committee on Children's Gardens we have a definite line of work and with an increased appropriation we expect to place our Society at the head of the movement in this state.

Our goal is reached when every school in Massachusetts has a garden and every child has a home garden. We believe that if this goal is ever reached the results in happier and better children and in improved home surroundings will amply repay all our efforts. We ask the hearty coöperation of all members of the Society and thank the Trustees for their attention to our requests. The field is broad, the results inspiring, and our onward movement is dependent on our energy and the money at our command. May both increase in the year to come.

Abstracts of Addresses made at the Children's Garden Conference.

Held at Horticultural Hall, Boston, December 2, 1905.

School Garden Work in Boston Schools.

BY MISS ESTHER F. HALLOWELL, BOSTON SCHOOL GARDEN COMMITTEE.

The Rice School Garden on Dartmouth Street, which was started in connection with the Boston Normal School in the Spring of 1901, may be said to be the pioneer in the attempt to establish garden work in the congested districts of any large city. A vacant lot near the schoolhouse was secured and the ground dug up and fertilized by many loads of street sweepings. The lot was then divided into individual beds, 8 feet by 4

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feet, which were given to children of the seventh grade. Seeds were planted and watered by them, and soon the heretofore barren ground began to be spotted with green. Support for this garden both active and material was given by a committee of the South End House. Later in the year the Twentieth Century Club of Boston helped. The following fall there was introduced into the Normal School an elective science course with practical work in the Rice Garden.

During the summer of 1901 the Civic League Garden was established on the Columbus Avenue playground. Beds were allotted to the children in the order of application.

In the spring of 1903, with these two gardens as examples, seven new ones were established by the Women's Auxiliary of the American Park and Outdoor Art Association. Later these committees merged into one School Garden Committee.

This committee now has the supervision of nine school gardens. Five of these gardens are confined to very limited spaces in the school yards, and therefore the separate beds are much smaller than they should be for the best work. But in these crowded districts we are thankful for every inch of ground given us. The schools above referred to are the Lyman and James Otis of East Boston, the Hancock in the North End, the Winthrop and the Martin in the South End.

The Wells (girls) and Phillips (boys) Schools, of the West End, are situated in one of the most congested quarters of the city. The school yards are large enough only for the children to stand during their recess periods, crowded together like penned up animals. To enable these children to "farm" the Boston Park Commission has been most obliging in giving two strips of land on the water front of the Charlesbank Park which have been converted into 118 beds. The Park Commission placed fences around the strips and plows up and fertilizes the ground each spring before the children go out to make preparations for planting.

The problems of space and fertilizing which must be faced and overcome by the city gardeners practically disappear when we go to the suburbs. The two suburban schools, the Washington Allston in Allston, and the Blackington in East Boston are fortunate in having enough land to enable each child to possess a larger plot and therefore to accomplish more satisfactory work. The Washington Allston school has several fruit trees on its premises.

In the Boston public school curriculum two hours a week are set aside for nature work. Through this channel, with the interest of the school authorities and the coöperation of the masters and teachers, the garden work has been introduced. It is one of the great objects of the committee to have the garden work bound to the school and made as important a part of a girl's or boy's school training as the manual work. To accomplish this object with profit to the children correlation of garden work with school work is essential; for by this correlation not only will the garden become more lasting and valuable but the other school lessons

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will be made alive by the contact every child has with real good earth and real live plants. If the garden lessons could be continued through the school months the children's interest in the outdoor work would be kept awake during that period when their gardens are sleeping under the snow of our New England winters. There is plenty of material for these lessons.

In September the new class, preferably seventh grade, is taken out to examine the condition of the plants, the seeds, and the weeds in the garden after a summer's cultivation. In October and November the garden is cleared, the shrubs are pruned, the ground is dug and fertilized, perennials and bulbs are planted, and the garden covered for the winter.

Planting of bulbs in the school rooms is done now also. In connection with the fall work the children are taken to the fruit and flower exhibitions in the city where the examples they see give unimagined pleasure and arouse great interest in "growing things." During the winter months of December and January lessons on the soil and experiments in germination go far to prepare the children's understanding of what they must do and see when the outdoor work begins. In February seeds are planted in window boxes so that the small tomatoes and cabbages will be ready to set out as soon as the weather will permit. With March come the catalogues, the garden plans, the buying of seed, etc. April, May, and June present more work than can well be done in the allotted two hours a week. When school closes in June many of the children for one reason or another are unable to attend to their beds. But as many as are able continue to appear at stated hours to continue the work and the vacant places are filled by other children. A part of the vacation work — or pleasure — are the excursions to the market gardens of Arlington where the children are enabled to see on a large scale what they have already seen on a tiny scale in their little city plots. The work done in the vacation months is in the entire charge of a voluntary committee in coöperation with the school authorities. There has been an attempt to coöperate with the vacation schools.

If a child has attended school regularly and has been able to care for his garden in the summer he has seen performed under his eyes a complete cycle in the vegetable life. Add to this the correlation with his other school studies and the garden becomes a real part and a valuable part not only of his life but of the life of the world.

In his arithmetic he can find the area of his own garden instead of an imaginary field; from his window box he can study a right angle; in his manual training class he makes the window box, the markers, and sometimes even the tools; in his geography he learns in what part of the country is grown the hemp, flax, and grains, specimens of which he sees in his own plot; in his drawing class he draws a flower or seed from his own garden instead of one brought by the teacher; in the cooking class the girl cooks her own vegetables; in the language class the boys and girls write letters to the seedmen for catalogues or to the agricultural depart-

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ment for seeds, and keep diaries of what goes on in the garden. Thus the garden and all pertaining to it mean something. So many are its advantages that it seems to demand a place in every school.

The necessary money for the support of the gardens was supplied in the beginning by a voluntary committee. More help has come each year from the city and ultimately the whole responsibility will rest upon the city.

I have spoken somewhat of the educational value of this garden work. I want to say just a word about the economic value. Boston is so situated that its suburbs are near at hand and very accessible ; that is, Boston has special facilities for an outward movement. It will therefore be of the greatest service to the city if, by teaching the children to be interested in the cultivation of the soil, the congested districts be relieved.

School Gardens as a Preparation for College.

BY F. A. WAUGH, PROFESSOR OF HORTICULTURE AND LANDSCAPE GARDENING, MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MASS.

The following points were brought out:

(1) School garden work is many sided and bears on many things. Its value in the preparation for college is only one of these things and not the most important.

(2) Preparation for college is usually considered the business of the secondary schools and academies. However, college preparation consists of everything a student goes through up to the time of college entrance.

(3) Too much thought is sometimes given to preparation for college, especially in the high schools. The high school curricula are sometimes designed as though all high school students would enter college, while as a matter of fact a very small proportion of them do.

(4) Nevertheless, preparation for college is confessedly inadequate. There is great complaint that students come to college insufficiently prepared. If this complaint has good foundation when made by the classical colleges, it must be doubly true when made by the technical and agricultural colleges, because high schools and academies do very little in preparing their pupils for agricultural courses.

(5) The work of the school garden to some extent meets this confessed deficiency. It leads more directly toward the work of the technical and agricultural colleges because it deals with the materials of those courses. At the same time it strengthens the pupils' work in precisely those elements where it is confessed to be weak from the standpoint of general training, namely, in initiative and in independence of thinking. This is because the school garden deals with concrete subjects and phenomena instead of with abstract ideas and mere words.

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(6) The present speaker confesses to a strong prejudice in favor of that sort of college training which is based upon the sciences rather than upon the classics, so called. He believes the mind secures a better drill in dealing with concrete things and phenomena than in dealing with abstract ideas; that it learns to reason more rapidly and accurately by following from effect back to cause in the study of natural phenomena than in learning by rote some artificial language; and that the training of the judgment which necessarily goes with this practical activity is of paramount importance in all the work of life. From these premises it is very easy to reason that school garden training is valuable to pupils by introducing them to a better sort of college course than they might otherwise elect.

The School Garden as a Factor in Village Improvement.

BY PHILIP EMERSON, PRINCIPAL COBBET GRAMMAR SCHOOL, LYNN, MASS.

The Massachusetts Commission on Trade Schools has found that children who leave school for work early are 'of little value to employers because they lack the initiative and sense of responsibility that were once developed amid the manifold occupations of the farm home. The school garden may aid effectively in securing these qualities. The school should inspire, instruct, and train the children by means of a model school garden; and then the children should apply their knowledge and skill in improving their home grounds and caring for their own gardens there.

When the child of a Russian immigrant laboriously sifts the trodden soil of a tenement back yard, plants corn and flowers in place of stones and tin cans, and guards the growing plants until the corn appears on the table of his proud parents and vines cover the old fence and tumbling outbuildings, then something worth while has been accomplished in his education; he will have developed initiative and a sense of responsibility.

Home gardens in whose care the children have stimulus and advice, by means of the school garden, are better than individual gardens at school where assignment and direction are the rule. Independent work at the right point is best. Prizes, perhaps of hardy plants, and due recognition of merit are essential. The school garden should be a center for civic improvement. Hardy perennial flowering plants may be propagated at school from seeds, divisions, and cuttings, for sale to citizens of a city or town. The children are given training in their care, and a great variety of the best hardy plants may be very cheaply introduced into a community, the school incidentally receiving a considerable revenue from their sale. In the Cobbet gardens a single hardy chrysanthemum secured in the spring of 1904 has now multiplied to over 250 plants that will be distributed in the spring of 1906. We have dozens of varieties of seedlings in cold frames.

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A city school garden should carry garden work throughout the year, by means of cold frames, hotbeds, window gardens, mushroom beds in the cellar, and ere long by a school greenhouse. Such intensive garden work is the appropriate training for city conditions where land is valuable and children have time to spare. What school garden development most needs is instruction for teachers. The Massachusetts Agricultural College should publish leaflets and arrange extension courses for teachers. There should be a practical class in gardening open to teachers in one or more places of eastern Massachusetts. There are failures and much waste in the work now because of the inability of teachers to grow plants with full success.

Children's Gardens from Frost to Frost.

BY HERBERT D. HEMENWAY, DIRECTOR SCHOOL OF HORTICULTURE, HARTFORD, CONN.

Three things fix a man's value in the world. His knowledge or what he knows, his ability or what he can do, his character or what he is. The school should help in developing all three, and the school garden is perhaps the most potent factor in developing the man. It increases his knowledge and his ability to do things and develops his character.

The school garden can be correlated with all other things taught in the class room. It takes away the drudgery of the school life. Children having some outdoor work in the garden, generally, if not always, develop more rapidly mentally as well as physically and morally.

The school gardens at the Hartford School of Horticulture begin for the first year in May; the second year in March; the third year in February; and the fourth and fifth years in January; and continue until October. The children come into the class room, where they receive their notebooks, and write down from dictation or copy from the blackboard definite directions; then with the instructor and their seeds they pass into the tool room, where they receive their tools, and then into the garden, passing by observation plots of all of our common agricultural and market garden crops, flowers, and fruits.

There are now about five hundred different kinds of things growing at the School of Horticulture; all distinctly labeled with the common English names.

While an agricultural failure may not be an educational failure, we should try to have the school gardens succeed, and have results from an agricultural and horticultural standpoint. The moral value of success is very great and wherever possible the gardens should be conducted right through the summer so that they may never become overgrown with weeds.

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In this way it will keep the boys occupied or otherwise they would be on the street learning nothing that was good and often sowing the seed of future crime. The gardens should begin early, as soon as the frost is out of the ground, the land should be thoroughly prepared, and they should continue right through the summer. We should have the gardens from frost to frost, and the best possible results not only from a horticultural standpoint but from the development of body and character. It also has a money value. The children learn something of industry and are able to work about the city, and take care of lawns and make themselves useful, thereby increasing the earning power of the family.

School Garden Work in Cleveland, Ohio.

BY MISS LOUISE KLEIN MILLER, CURATOR OF SCHOOL GARDENS.

Miss Miller told of the work which had been done by the Home Gardening Association, in conjunction with the Board of Education, in inaugurating school gardening in Cleveland and spoke very enthusiastically of the work which had been accomplished and which they expect to do in the future. Cleveland aspires to be the most beautiful city in the country and it is expected that the school gardening work will do much to bring about this condition. The following abstract will give a good idea of some phases of the work at the present time.

The school garden work in Cleveland has now passed far beyond the experimental stage. Up to this year all the time devoted to the garden work has been out of school hours, but it is now planned to make the practical operations of the garden correlate with other branches of study.

The study of soil formation; the relation of heat and moisture to soil; the capillarity of soil; the weather record; the relation of plants and animals to soil are all fundamental to the study of geography.

A child who has laid out his garden with a tape measure, drawn it to scale, and dug the soil, has a definite knowledge of lines, area and volumes. The weighing and measuring of his products and its estimate in money value, give a more vital significance to the study of compound denominate numbers than any artificial device. The opportunity of doing rational nature study in the garden is too apparent to need comment.

The school garden work already accomplished has made Cleveland well and favorably known in all parts of the country where progressive work is appreciated.

The school garden movement was first inaugurated in 1904 by the establishment of four gardens, the expense being assumed jointly by the Home Gardening Association and the Board of Education. This year the Board of Education assumed entire control and established eight gardens in dif-

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ferent parts of the city. Owing to the lateness of the season and the unprepared condition of the soil, planting was not begun in some instances until the last of June and there were many difficulties to overcome.

The object is to make the school grounds and gardens radiating centers for civic improvement.

Children's Garden Exhibitions.

BY ADIN A. HIXON, WORCESTER, MASS.

The first exhibition of children's school gardens that I remember was a little more than 50 years ago. At that time I attended school in Dedham, and Mr. Richardson, afterward editor of the Boston Congregationalist, was the teacher of the school. We had a large school yard of about an acre or an acre and a half, and it was at Mr. Richardson's suggestion that we had a garden. The boys had a large yard to play in with room for a ball ground next to the schoolhouse, and a chestnut and oak grove on the other side. The girls also had a large yard where there were plenty of shade trees, although these were not too thick to admit the sun in the morning. Their yard was separated from adjoining property by a high board fence and the teacher suggested that we make a garden alongside of this.

The fence was some 200 feet long and we made a garden about 100 feet long and four or five feet wide. It was Mr. Richardson's idea that the boys should make the garden and we set to work filling it with various plants that the children brought from their homes. The boys did all the digging, wheeled away the stones, and brought the dressing in wheelbarrows.

The boys at that school took much pride in this garden and cared for it faithfully that year and the next. What became of it after that I don't know as I left school the next year. Not only did the boys take good care of the garden, but they began to take some pride in the school yard, carted away the stones and cleaned it up generally.

While I am a believer in school gardens in certain ways, I do not believe in a society like the Worcester County Horticultural Society offering prizes for school gardens until they are endorsed by the school committee, or that that body at least gives its consent to them.

The first school in Worcester to arouse interest among the pupils was the Upsala street school, where Principal Miss Mary C. Henry interested her pupils and teachers to an unusual degree. The teachers at this school gave the pupils of several grades seeds of the bachelor's button, nasturtiums, and petunias, which they were allowed to take home and plant. Just before the close of school they were requested to bring the products

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of their gardens to school and prizes were awarded. Over 250 specimens were brought in and prizes of from 25 to 50 cents given. The effect of these gardens on the neighborhood was wonderful, as neighbors became interested in the work of the children, and gradually turned to it themselves, thus changing the whole appearance of the neighborhood.

Then the Dartmouth street school did something similar in giving out seed to the children. Before the close of school I went up there and talked in three different rooms, where the grades where doubled up. The teachers had the children bring their crops to school and there was an exhibition in the school corridor, where the flowers and vegetables had been arranged on long tables. I questioned the children to see if they knew the names of the different specimens and asked how they grew the things. The classes came up one at a time and we had sort of an object lesson. Several times after this various exhibits of the best were taken and sent to the Worcester County Horticultural Society's exhibitions, where they were given prizes of money, which was used in embellishing the school rooms.

The Worcester County Horticultural Society had considered various propositions for encouraging children but they never amounted to anything until this year, when the society appropriated $50 for two children's exhibitions. A schedule of premiums was made and sent to the various school children and others interested in the work throughout Worcester county, offering $1, 80 cents, 60 cents, 40 cents, and 20 cent premiums for the best collection of vegetables and for the best collection of flowers grown from seed, and prizes for various specimens of vegetables and different kinds of flowers of 50 cents, 40 cents, 30 cents, 20 cents, and 10 cents.

Any child under 14 years of age was entitled to exhibit; the work from the planting to the harvesting of the crop to have been done by the child itself. We had two exhibitions, one in July and one in August, which resulted in our having 35 exhibitors at one time and 37 at the other. While nothing had been said regarding gratuities, the committee decided to give a gratuity of 10 cents for every exhibit which did not take a prize. The enthusiasm and interest shown by the children was simply marvelous. One of our most earnest workers was Roger Newton Perry who took your first prize for home gardens. He was one of our largest exhibitors and did some splendid work.

A feature of the exhibitions was that the children were paid their premiums on the spot. I believe that when you tell a child you'll do something, in doing it, and right away, too. Immediately after the show we paid the children just what we owed them and every child was happy because everyone got something. I received several letters from some of our young exhibitors afterwards, thanking me for the good time the society had given them.

These exhibitions were so successful and were received so favorably that the society has appropriated double the amount of money to have similar exhibitions next year.

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School Garden Notes.

BY FRANK M. MARSH, SUPERINTENDENT OF SCHOOLS, FAIRHAVEN, MASS.

After listening with you to the many interesting phases of the work with children's gardens which have been presented by the speakers this morning, I shall not attempt to add anything new, but I am constrained to ask you, for a moment, by way of review, to consider one or two points that may be open to discussion. First: children's gardens should not be begun without careful plans and preparation on the part of the director. I am firmly convinced after several years' experience that the garden movement, in its most sane aspects, is the best method of nature study that has yet appeared. It should not be taken up in a headlong manner as the result of a bit of temporary enthusiasm which has seized some one who has not counted the cost in labor, thought, and planning necessary to reach an ultimate goal which may be of sufficient worth to pay for the undertaking.

I have, now, in mind a city which of all cities in the state would be greatly improved by the children's garden idea; but in which a hastily conceived and poorly completed attempt at school gardening brought about failure, with the natural result that the whole idea has been sadly discounted and put in the background for many years. Do not injure the cause by starting with only surface knowledge and enthusiasm. Plan wisely and try to realize the highest aim of the movement.

This leads me to criticise some of the aims and purposes set forth in the papers this morning. Some of these aims and purposes have been devised to controvert the claims and criticism of the unthinking who look upon the work as a "fad" which to the public is a horrible but indefinite something. I want to urge one and all not to allow children's gardening in any of its forms to be taken up in such a way as to be looked upon as a "fad". Make it a success and the result will make the doubtful critic sorry that he had not deeper insight into the movement before he passed his hasty judgment.

It is not necessary to go very far afield to find an excuse for the garden idea for children. I fear that a tendency has been too often shown to make the movement too pedagogical; too cut and dried. Do not kill the enthusiasm of the young gardener by making him feel that his garden work is for the sake of helping his arithmetic, his language, or his nature study. It is well to correlate, but do it indirectly or it will, I fear, react unfavorably if we continually try to defend the school garden by illustrating how it may be used for the sake of numbers, language, science, etc. If the idea of children's gardens has not sufficient merit and value to stand upon its own feet it had better fall before it climbs any higher.

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I like to put the matter the other way, and this, perhaps, is what our friends mean, *i. e.*, to correlate the subjects of science, language, and numbers with *gardening* in such a way that these subjects may serve as aids to gardening and be used as means or instruments for the sake of the more real thing, the garden. It is not necessary to apologize for the children's garden by showing how the idea may be correlated with all the rest of the curriculum. As I have before said, I fear that any such cut and dried treatment may take away the very naturalness and life of the movement and put out of sight the real kernel and highest purpose of the garden idea.

Another claim is often made that through the gardening a business instinct is developed. Examples of bright boys selling products, cornering the market, getting control of the other boys' crops, etc., are set forth as results. It is not denied that thrift may be developed, but it is not necessary to use the school or home garden to teach the bright Yankee boy how to do a commercial trick. There is enough of this spirit in the air to make it sufficiently contagious.

The real aim, it seems to me, is to create a love for the beautiful plant and shrub and to show the boy how to make a small plot of earth or yard serve as an economic aid to the home not only in supplying vegetables but also flowers and beautiful surroundings. Children's gardens are not for the sake of the school or the subjects in the curriculum, but for the more important institution, the home, and for the sake of the children themselves. We aim to develop patriotic citizens, but if a man loves his home it is not difficult to arouse his patriot spirit in time of war. It is a higher type of patriotism which makes a boy love his home enough to have a desire to make it beautiful and wholesome within and without. Teach a boy or girl how to make a back yard beautiful and fruitful, how to make and keep a fresh and even lawn with its boundary of shrubbery, and you will have aroused a new interest in the home and with it a corresponding love therefor.

A community made up of such individuals and such homes will be wholesome and beautiful. The character of any place depends so much upon its homes that any movement that tends toward their improvement will be worth the cost.

My word of warning, then, is to be certain that children's gardens are never introduced until sufficient preparation is made to assure permanent success. Do not make the idea too pedagogical thus diverting attention and interest from the real and living aim which it seems to me is to interest the child in the possibilities and beauties of nature through a knowledge of vegetable and plant life; and, finally, utilizing this interest in beautifying the home and its surroundings.

These experiences will not only react upon the character of the town but also upon the life and character of the individual boy and girl.

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Ten Minutes in a Boy's Garden.

BY MISS ELIZABETH S. HILL, DIRECTOR OF CHILDREN'S GARDENS AT BROOKLINE AND GROTON, MASS.

Property:
Garden Tools, Garden Line,
Overalls, Jumper, Hat,
Model Garden.

Dramatis Personæ:
E. S. Hill, Garden Director,
Daniel Needham, Garden Worker.

Scene:
A Boy's Garden, 15 feet × 5 feet.

(*Enter Garden Director.*)

Garden Director: "I wonder where Daniel is; he is always so punctual."

(*Enter Daniel.*)

Garden Director: "Good morning, Daniel."

Daniel (*taking off hat*): "Good morning, Miss Hill."

(*Looking garden over.*)

Garden Director: "How does your garden grow?"

Daniel: "It grows all right. See how nice the rain made it look!"

Garden Director: "Yes, 't was just what it needed. Artificial watering never does so much good as the rain. Did you see anything on your way?"

Daniel: "Oh, yes! I saw a little pink moth on an evening primrose. I could hardly tell it from the flower."

Garden Director: "That is what is called 'protective coloration'. The evening primrose is a night blooming flower; the pink moth comes at that time to sip its nectar. In the morning, the flower closes, fading to a pink color, enclosing the little pink moth. It takes pretty sharp eyes to tell whether it is a moth or a petal."

Daniel: "I saw a handsome bird, all yellow but wings, tail and cap black. It went dipping through the air, singing, 'chè che che chè, chè chè che chè'."

Garden Director: "That was the goldfinch. He *is* a handsome bird, a great friend of the gardener. He is a weed seed eater, and one third of his food is injurious insects. They stay in flocks all winter, turn an olive brown color, and don their yellow dress when the dandelions begin to bloom."

(*Both looking garden over, Daniel hoeing a little.*)

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THE FIRST OF JUNE: CHILDREN'S GARDEN GROTON, MASS.

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Daniel: "There aren't many weeds in the garden, are there? Had I better hoe it?"

Garden Director: "It is just as well to do so, as it makes the soil more porous, letting in sun, air, and water. Many German gardeners never use fertilizers, but keep the land thoroughly hoed. Have you written in your note book the amount of vegetables you expect to raise in your garden this year?"

(*Daniel opens note book.*)

Daniel: "Yes, Ma'am." (*Reads.*)

"6 sunflowers, 24 ears of corn, 50 tomatoes, 15 quarts string beans, 52 beets, 2 pecks beet greens, 250 radishes, 34 heads of lettuce, 1 peck small lettuce, 66 turnips, 2 pecks turnip greens, 3 cabbages, ½ bushel spinach, many flowers."

Daniel (*looking up*): "Do you want me to read what I did in the garden Tuesday?"

Garden Director: "Yes, do."

Daniel (*reading*): "Tuesday, July 28. Hoed corn. Thinned the beets. Took 1 peck of beet greens. Pulled 2 dozen radishes, 2 heads of lettuce, and picked some flowers. Sold one half on the way home. Ate the rest. I saw a dragon fly come out of his skin. He was clinging to the bridge. He was soft and flabby when he came out, but grew stiffer and stiffer, and at last flew away. He eats mosquitoes." (*Daniel closes his note book and continues his hoeing.*)

Garden Director: "I am glad you saw that dragon fly; it is one of the most wonderful sights you will ever see. What have you done with most of your garden stuff?"

Daniel: "What we haven't eaten, I've given away or sold. They say our beets are sweeter than those they buy at the market."

Garden Director: "Good enough!"

(*Daniel finishes hoeing.*)

Garden Director: "Now you've hoed it all over, we'll transplant the lettuce, so the plants will be one foot apart, one foot from main row, and six inches from edge, — five plants transplanted."

(*Daniel takes garden line and measures 1 ft. from row of lettuce, makes small holes every foot, transplants as he talks. Grabs and catches a beetle.*)

"Oh, see this beetle! it is the ground beetle, isn't it? Well, if I hadn't come to the garden, I shouldn't have known it, and should very likely have killed it. Now I know it is a friend that eats wire worms which destroy corn and other vegetables."

Garden Director: "Yes, he's a very useful little creature. We'll let him go now."

Daniel (*puts down beetle*): "See him run!"

Garden Director: "Why do you suppose he moves so quickly, while the June beetle goes so slowly?"

Daniel: "Why, his food is animal, so he has to move lively to catch it. The June beetle eats vegetable, so does n't have to hurry."

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Garden Director: "That's just the reason."

Daniel (*finishes transplanting his first head of lettuce. Looks at tomatoes*). "Miss Hill, what kind of insects are these on the tomato plants? They jump like everything."

Garden Director (*examining leaves*): "These are flea beetles. We must put on some lime. What kind of mouth parts do they have, if they are beetles?"

Daniel (*thinking a moment*): "Biting mouth parts."

Garden Director: "Would you put on something to choke them or something for them to eat?"

Daniel: "Something to eat, like lime, Paris green, or Bug Death."

Garden Director: "What did we use to kill the aphids on the lettuce?"

Daniel: "We used hot soap suds (*takes out a lettuce plant and examines it*) to choke them, as they have sucking mouth parts, and it *has* killed them as there are none on it now." (*Puts lettuce into ground.*)

Garden Director: "So it has. Pat the earth round them good and hard."

(*Daniel takes another to transplant.*)

Garden Director: "I am going to give you a regular examination today. Now tell me about fertilizers. Why do we use them?"

Daniel: "Because there are certain foods plants cannot easily get from the soil."

Garden Director: "Yes, and some soil has n't the proper food, so we have to supply it. Let us go straight through the garden, and see what each plant needs." (*Both look at sunflowers.*)

Daniel: "Sunflowers need nitrogen for the growth of leaves and stem. Corn, nitrogen for quick stocky growth, and potash and phosphorus for the maturity and growth of fruit. Tomato plants also need potash and phosphorus for the growth of fruit."

Garden Director: "How did you raise these tomato plants?"

Daniel: "I planted the seed in the house in March, in a twelve-inch square box, in two inches of rich soil. When a few inches high, I thinned them to three inches apart. They grew like everything, and I put them out the first of June."

Garden Director: "You raised some very nice plants. What kind of food do beans need?"

Daniel: "Phosphorus and potash for maturing fruit. Beets and radishes need potash for the growth of the roots, and lettuce needs nitrogen for the growth of the leaves." (*Transplants fourth plant.*)

Garden Director: "You remember that pretty well. How did we find what phosphates the land needed?"

Daniel: "By experimenting with pure fertilizers." (*Takes out fifth plant. Looking up.*) I saw a crow pulling corn this morning."

Garden Director: "I know the crows pull corn. What is the rhyme we say when we plant corn?"

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Daniel: "One for the blackbird, one for the crow,
Two for the cutworm, and two to grow."

Garden Director: "How many are allowed for the crow?"

Daniel: "One."

Garden Director: "How many for the cutworm?"

Daniel: "Two."

Garden Director: "Which is worse, the crow or cutworms?"

Daniel: "Cutworm."

Garden Director: "The crow eats thousands of cutworms, so he is a friend as well as a foe."

Daniel (*putting in last head of lettuce*). "There! this is the last one."

Garden Director: "You've transplanted them very neatly. Next week you may take out all the radishes, and transplant three cabbages into their place. Why do you suppose we put cabbages in the place of radishes?"

Daniel: "I don't know."

Garden Director: "Because the second crop should be totally unlike the first. Cabbages are grown for their leaves, and need a different food from the radishes, which are grown for their roots. What shall we plant in place of beans?"

Daniel: "Might plant spinach, because spinach is grown for leaves, and beans for fruit, and use a different food."

Garden Director: "Yes, and do you remember that we inoculated the beans with nitrogen collecting bacteria, and nitrogen is what spinach needs? We will put in spinach seed today, two feet from the beets, cover thinly, and pat down well."

(*Daniel measures two feet from beets, takes line, stretches it, steps on it so that the row may be straight, puts in the seed, and covers about one-half inch.*)

Garden Director: "Later, turnips may take the place of lettuce, as they need different food. That will give a good rotation of crops."

(*Daniel picks up tools.*)

Garden Director: "The judges were in the garden yesterday. They say your garden is all right; that it shows care, neatness, and a good knowledge of gardening."

Daniel: "Well, I'm glad they like it, but I'm not working for a prize, but because I like to have a little garden of my own."

Garden Director: "That's the true garden spirit. You've done well today. Don't forget to clean your tools. Good-bye, Daniel."

Daniel (*doffing hat*): "Good-bye, Miss Hill."

Exit.

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Report of the Cobbet School Garden, Lynn, Mass.

BY PHILIP EMERSON, PRINCIPAL.

First Prize, 1905.

We herein make report upon the Cobbet School gardens for the year 1905 now drawing to a close; and we are happy that we can report notable advances in the development of our plans. Photographs of the garden and papers illustrating the relation of the gardens to ordinary school work accompany the report.

The garden continues to expand. The past spring the last of the two hundred dollars' worth of soil was placed in generously deep trenches along remaining borders of the yards. The great pile of stones, gravel, and ashes excavated by the boys to make room for soil is soon to be removed by the city. This autumn the garden has spread beyond the school bounds. A large propagating bed for hardy perennial flowering plants has been made and planted in one neighbor's yard next the boys' playground, while an eighth-acre of sod in the yard adjoining the girls' playground is about to be manured and ploughed for use in individual plots next spring.

Training in garden work continues to broaden until it is now active at all seasons. During the past summer the garden was thoroughly cultivated and weeded throughout the vacation season under the principal's immediate supervision. Seeds have been planted during every month from April to October and every bed has been constantly occupied. The harvest commenced in May and will not be fully marketed until December. When the season opened a two-sash cold frame was in use. This September the School Committee built the frames for ten more sash, while the sash themselves were bought with receipts from the sale of school garden products. The frames are now full of seedlings of hardy perennials (over sixty varieties) and of salad crops that will mature at Christmas. In the school basement a mushroom bed is being started under the guidance of a successful amateur and this will continue the harvest until slips and seedlings for another year's gardens fill the class room windows.

Our school gardens are respected as never before. Hostile criticism has ceased and the interest and approval of citizens is more marked. Moreover, while many flowers and vegetables were stolen last year, there have been almost no depredations during the present season, although the products have been more tempting. Past perseverance has been rewarded and the value of patient continuance in well doing has been effectively taught the pupils.

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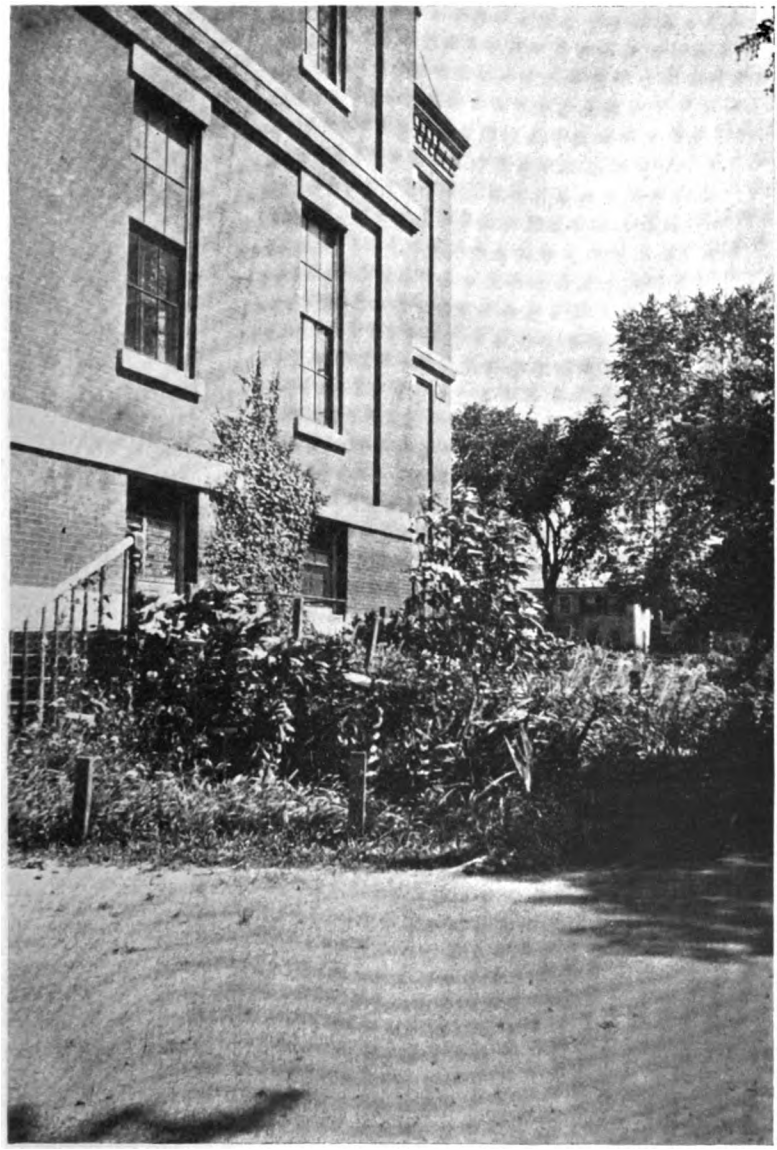

HARDY PERENNIALS: COBBETT SCHOOL GARDEN.

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The school garden plant is becoming a paying investment from a monetary standpoint as well as educationally. During the three years preceding this we have solicited gifts of money, tools, plants, and seeds, and have incurred a heavy debt for soil. This year we have paid for supplies costing over thirty dollars with receipts from the sale of garden products at ordinary market prices, and plan to apply a considerable balance toward cancelling our debt for soil. Last year some three dollars was received from the incidental sale of products; the sales of hardy plants, bulbs, cutflowers, and vegetables this season bid fair to amount to nearly fifty dollars although the sales are still distinctly incidental to the main educational purpose of the gardens. We believe it to be clearly desirable that a school garden should become self-supporting in order that it may give the broadest and most practical training to the pupils.

Progress has been made in every department of the garden. A brief account follows of the several phases of our work: typical beds of vegetables and herbs, large plots of native plants, beds for bulbs and annual flowers, a space for commercial plants for geographical specimens, vines for school decoration, an "old-fashioned" garden of hardy perennials, and cold frames and beds for multiplying plants for prize distribution and sale in our city.

Every one of the seventeen classes was given the care of one or more plots this spring. Unabated enthusiasm in spading, manuring, and seeding was shown. Indeed, the soil of many beds was sifted this year in the desire of every group of boys and girls to do as thorough work as their fellows could. When harvests commenced there was keen rivalry to purchase portions of the products, and fancy prices might have been secured had we thought it wise. A great variety of vegetables has been raised that the children may come to know them and the culture they need. We have sold several kinds of lettuce and radishes; string, shell, and lima beans; tomatoes and strawberry tomatoes; Swiss chard and peppergrass; sage and other herbs; sweet corn, potatoes, beets, kohlrabi, onions and scullions; curled chervil, squashes, and rhubarb. Turnips, parsnips, salsify, and carrots are now ready to be harvested and sold. Spinach, kale, endive and corn salad are still growing thriftily in open beds and cold frames. There have been a few failures: the crop of cabbages, Brussels sprouts, and cauliflower is much inferior to that of last year because the bed they are growing in is shaded by a tree and its moisture and fertility are sapped by tree roots this season. Only one of the dwarf sieva beans germinated; okra was planted too late for a good crop; a second planting of sweet corn did not quite attain maturity before severe frosts came. The strawberry bed and the row of bush fruits are now thriving. Somewhat less space has been given to vegetables than last year, but more varied and better products have been raised.

The garden of native plants has been maintained and its development along established lines continued. We find that the sunken tubs for

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swamp and pond plants serve to keep the soil about them moist also. Such shrubs as willows and button bush have been planted near them, along with moisture-loving herbs and sedges. In one tub there is a clump of cat-o-nine-tails and tall bog rushes, with the lance-leaved white violet, marsh marigold and like flowers growing luxuriantly about its base. Some of the plants that are not native to Lynn which were added last year, like the mandrake and twisted stalk, are doing well, and a handsome western rudbeckia is spreading like a weed near the little pond. The new bed devoted to ferns is being gradually developed with special care that soil and drainage be right. Press of other garden work still precludes the accurate mapping of the wild garden beds with their nearly three hundred native species of shrubs, vines, herbs, grasses, sedges, and ferns. This year seeds of some of the more desirable native plants have been collected and a number of species are being raised from seed. It is planned to train the children thereby so that they may both grow native plants in home gardens and so that they shall lovingly protect flowers in their native haunts.

Two beds were again devoted to spring flowering bulbs and to annuals. These give opportunity to train pupils in the proper care of the flowers most commonly used in home gardens. Some twenty annuals were grown this year. Another bed was once more used for the grains, fiber plants, and the like. Exhibits from these beds were awarded first prizes by the Houghton Horticultural Society. We plan another year to grow many named varieties of one or two annuals, to impress upon the children the possibilities in this direction. Similarly the bed used for a variety of commercial plants hitherto, will be planted with a large range of the more important fodder crops. The vines on the south wall of the schoolhouse have been protected so that they are now mounting rapidly toward the eaves. Deep emplacements of soil have been made along the street front of the buildings, and vines are being raised from seed to be set out another spring.

The most marked advance of the present year has been in the department of hardy perennial flowering plants. In the spring one large bed was devoted to divisions and seedlings, and this work has been greatly extended as the season progressed. It is our aim to propagate hardy plants for distribution as prizes to the children having successful home gardens; for exchange with amateurs and with nurserymen that the variety of hardy plants in the school garden may be increased; and for sale to the citizens, both for the support of the school garden work and for the beautifying of the home grounds of the city. To further the latter purpose a catalogue of the hardy plants ready for sale was prepared by the use of illustrations and descriptions cut from trade catalogues. We have been too busy to press sales or even to circulate the catalogue thus far this autumn, but one sale of ten dollars' worth of plants has been made and others for smaller amounts. We believe a large field of civic usefulness

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is open to a school garden in this line. Our catalogue accompanies this report and details the scope of our plans, their method and purposes.

The quality of our work is attested by the exchanges we have readily arranged, not only with citizens who have fine gardens, but also with professional gardeners and nurserymen. Mr. Goodwin, the florist, whose greenhouses adjoin the school yard noticed the Helenium and Boltonia in our propagating bed and asked that he might purchase several clumps of each sort. Two clumps of *Pulmonaria saccharata maculata* were formed by division in the spring, and this fall they were exchanged at the well-known Reading Nurseries for ten species of hardy plants to the catalogue value of $1.50.

While some spaces in the hardy garden were filled this year with gladioli, montbretias, tigridias and like bulbs, these will have to be placed in another bed next spring, their places being taken by a variety of hardy plants. Not only are new hardy plants being introduced to fill vacant places, inferior varieties are being removed to make space for the best obtainable forms. For example, most of our clumps of phlox were old-fashioned varieties from Lynn gardens, vigorous plants but of sober colors. By purchase and exchange we have secured the best to replace them and have also started over fifty clumps of five sorts in our new nursery bed. The old clumps have been divided and have been awarded to pupils in the district where gardens are few and where the hardiest of plants are necessary for the best results. Similarly some fifty clumps of bulbs of the ordinary show and pompon dahlias will be divided another spring for use in the same district. Some of the finest cactus, fancy, and decorative varieties have been secured to replace them. In time the superior varieties now being introduced in all lines will be ready for prize distribution in their turn. We here wish to acknowledge a generous gift of canna and iris bulbs from the Hunnewell estate, Wellesley, through the gardener, Mr. T. D. Hatfield.

The school garden not only supplies plants for home gardens but stimulates and trains the pupils to plant individual gardens and to improve their home grounds. As last year, many dollars' worth of seeds were purchased for the children in cent packages, and we have commenced the policy of buying the most popular sorts in pound lots and retailing them at cost in quantities to suit the children. During the present week the children of the building, over eight hundred in number, have written stories of their home gardens for the year; and if the committee desires I will forward all or a selection of hundreds or dozens of papers to you. As an example of this work, which is really part and parcel of the school garden plans, I record the effort toward home yard improvement of two little boys who were in our school last spring but are now in the next ward. Their parents were born "within the pale" in Russian Poland and their home is in a dreary, cheerless building in a poor quarter, while the little back yard, strewn with stones, broken glass and tins about a dilapidated outhouse

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would have discouraged most adults from any attempt at a garden. The boys got a sieve, sifted all the dirt and removed the coarse waste, just as some classes were doing at school with the stones in the soil of their plots. Sweet corn was planted, with flowering vines to clamber over the rough board fence and the shed. A rude fence was built to protect the bit of garden. Despite all discouragements a good crop of corn was raised that greatly pleased their parents, and the flowers were still in bloom when the writer visited the home in October. Such results pay. The report of Joseph Perkins to your committee in the children's garden competition, and that of Arthur Richardson enclosed herewith show the results of three years of school garden work as reproduced in the gardens of two ninth grade boys at their summer homes. Master Richardson sent the principal in September a basket containing remarkably fine specimens of a dozen sorts of vegetables that proved truly excellent on the table.

The school garden is closely related to class room work in many ways, as illustrated by the drawings and written work of all grades and classes which we send you herewith. Thereby the school garden is enabled to reproduce itself in hundreds of children's gardens. Last year a definite series of lessons on garden soils was worked out with experiments, teaching, and text. This was reviewed the present season, and was followed by garden instruction and texts on the common root crops, evidence of which will be noted in the written work herewith. Several classes undertook a special study of weeds also. Our reports in previous years outline in some detail the relations of garden work to the course of study, so that no further statement is needed here. This autumn, however, a new step has been taken in advance. The girls of the eighth grade take cooking one session a fortnight. During these periods groups of boys from the same grade are regularly taken by the principal for systematic instruction in gardening. The work comprises class room instruction, experiments with plants, all forms of work with plants in the gardens, care of plants in the schoolhouse and cold frames, readings on gardening, related written work and drawing; and every boy is expected to carry on gardening at his home that shall parallel and apply the work and instruction taken at school.

Finally the Cobbet School gardens have proved their merit by their influence upon the community. Among teachers and parents, as well as with the children, they have so renewed and increased interest in horticulture that a new enthusiasm and energy have been awakened in the Houghton Horticultural Society at Lynn. Its present increased membership, broadened work, and improved financial condition are measurably due to influences springing from the garden at the Cobbet School. To fulfill a duty to a yet larger public, an account of "The Evolution of a School Garden and Its Ideals" was prepared for publication and has been accepted by the editors of the New England Magazine for their columns.

October 28, 1905.

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THE TOMATO CROP: CHILDREN'S GARDEN GROTON, MASS.

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Report of the Mill Garden, Groton, Mass.

BY MISS ELIZABETH SEWALL HILL, DIRECTOR.

Second Prize, 1905.

The Mill Garden of Groton was started in 1904, under the auspices of the Groton Village Improvement Society. It is on private property loaned for the use of the children, and is prettily situated being bordered with pines and spruces. The lot is 180 by 42 feet and the soil is good and easily worked. The individual gardens are 42 by 12 feet accommodating fifteen workers from five to sixteen years of age.

The children have met twice a week with an instructor; Wednesdays after school and Saturdays, from May 1 to September 25. Gardening is their pastime and they wished they might meet every day in the week. They kept the ground so well weeded that it was difficult to find one all the summer through. Everything was learned by observation and jotted down in a notebook. An ant was seen rubbing off its wings; a hellgramite was caught and studied its life through; everything of interest, and that meant everything, was noticed with enthusiasm, studied, and talked about.

With the six dollars awarded last year by the Massachusetts Horticultural Society were bought a good wheelbarrow, six large iron rakes, and three sets of tools. The gardens were laid out by the children under the instruction of the director. Insects and birds were studied and beans were inoculated with the nitrogen bacteria sent out by the Department of Agriculture. The peanuts were more successful than last year although not a very tremendous crop has yet been raised.

An exhibition of the garden products, in connection with the other gardens of the town, was held at the Town Fair in the fall. Prizes have been given for the best gardens, the judges marking in accordance with the following points:

General condition,
Rows out to path,
Well-thinned vegetables,
Nothing wasted,
No weeds,
Behavior.

These children are ideal gardeners, not only in their work but in every other way. They are bright, well-behaved, and appreciate everything

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that is done for them. The total product of the garden during the season was as follows:

Corn, 200.	Carrots, 3500.
Cucumbers, 30.	Beets, 2500.
Squashes, 6 winter, 60 summer.	Radishes, 15,000.
Pumpkins, 27.	Lettuce, 6000.
Melons, 12.	Beet greens, 50 pecks.
Potatoes, 24 hills.	Turnip greens, 50 pecks.
Tomatoes, 30 plants.	Sweet alyssum, 180 feet.
Beans, 30 quarts.	Zinnias, 180 feet.
Peas, 50 quarts.	Cal. poppies, 180 feet.
Peanuts, 45 plants.	Petunias, 180 feet.
Turnips, 3000.	Nasturtium, 180 feet.

Report of the Lincoln School Garden, Brookline, Mass.

BY MISS ELIZABETH SEWALL HILL, GARDEN DIRECTOR.

Third Prize, 1905.

The Lincoln School garden was started in 1903 by the Brookline Educational Society and in the present year was connected with the Lincoln School under the School Committee. It is situated on private property at the corner of Boylston and Cypress streets. It is not a desirable piece of land either in shape or in the character of the soil. It is deficient in nitrogen as was proved by the experiment with inoculated beans; no nodules being formed even then. It is, however, the nearest available plot to the school. The dimensions of this garden are 125 by 76 feet, divided into 68 lots, 15 by 5 feet.

Gardening was made a regular study and all work was done in school hours. During May and June at ten o'clock a class of about twenty boys was sent to the basement where the tools were hung in a row in sets of a hoe, rake, shovel, and trowel. They would take these and march up to the garden for one hour's work.

During the vacation many more children wanted gardens than could be accommodated and 167 different children worked in them although only one-half owned a garden.

Material for study in the class room was taken from the gardens, plants were potted and taken home, and some were placed in the school rooms. The dry weather for several weeks caused much anxiety and the soil was like powder. The seeds could not germinate but by constant working and watering they got through with very little harm.

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There were many visitors to the gardens: parents, friends, teachers, and others especially interested in the work.

An exhibition of children's garden products was held in the hall of the school, most of the work of arrangement being done by the children themselves. Ten tables averaging fifteen feet in length were closely packed with the exhibits and if more tables had been available they would have been used to advantage. In two days about four hundred people inspected the exhibit. Thirty-two prizes consisting of new fifty and twenty-five cent pieces were awarded for the best flowers and vegetables, nine of which were won by children connected with the garden of the Lincoln School.

Report of the Sewall School Garden, Brookline, Mass.

BY MISS ELIZABETH SEWALL HILL, GARDEN DIRECTOR.

Honorary Mention, 1905.

In 1903 the Sewall School garden was started by the Brookline Educational Society but is now under the direction of the School Board, the town contributing about one-half of the cost of maintenance.

It is situated on private grounds opposite the school building and is 137 by 50 feet in size. It is flat, easy to lay out, and every child in the school, 168 in all, had a garden. In the garden season the teacher took her whole class out and helped in the planting.

At the garden exhibition these gardens received nine prizes; each child picked, arranged, and carried his own flowers and vegetables. Thousands of flowers were picked every day; some sent to sick friends; some to adorn the class room; and some to take home.

These children are always eager for their garden work and have been faithful, helpful, and well behaved. There was a great gain in good behavior in the schools this year and it was attributed by the teachers to the garden work.

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Report of the Fairhaven School Gardens.

BY ANNA BAILEY TROWBRIDGE.

Honorary Mention, 1905.

The year 1905 brings to a close the most successful season in the history of the school gardens of Fairhaven, Massachusetts.

Established three years ago as an experiment, these gardens have now become a part of the education of the boys and girls in the sixth and seventh grammar grades; the increasing interest of the children with the attendant gratifying results seems to warrant the maintenance of this work as a permanent feature in the school curriculum of the future.

Some changes were made this season which tended to improve the conditions of the gardens as a whole. Each child was granted two plots of ground fifteen feet long by four feet wide, with a division between each bed two feet in width; this gave each boy and girl more soil to cultivate, with a double reward of vegetables and flowers over returns of previous seasons. Last year the luxuriant growth of flowers, as the summer advanced, rendered some of the paths quite impassable, so this season this difficulty was obviated by laying out all general paths three feet in width.

Early in the spring, after the ground had been ploughed and harrowed, the young gardeners staked off their lots and prepared the soil for the reception of the seed. The method of planting, by a rope, was the same as last year, and on the 10th of May the first row of boys and girls had finished depositing their seeds and were busy cleaning up the surroundings of their little plots. While these children had been occupied with their planting, the little tillers of the soil in the second and third rows had not been idle; gardens had been spaded, fertilized and raked, and eyes were eager to catch glimpses of a first radish leaf or blade of corn. On the 17th of May the last of the sixty beds was sown, and the first row of gardens showed signs of germination.

One half of each garden plot, as shown in the accompanying drawing, was devoted to such vegetables as corn, lettuce, peas, beans, beets, carrots and radishes, while the other half, as the season advanced, was aglow with nasturtiums (dwarf), zinnias, verbenas, phlox, ageratum, marigolds, sweet alyssum, etc.

The work on the gardens, as in the past, was carried on outside of school hours, so on Saturday mornings or after school at night, could be found a group of earnest workers, busy weeding, transplanting, hoeing or raking as conditions required. Through the summer vacation the little farms were visited regularly by their owners, tended carefully, and baskets of

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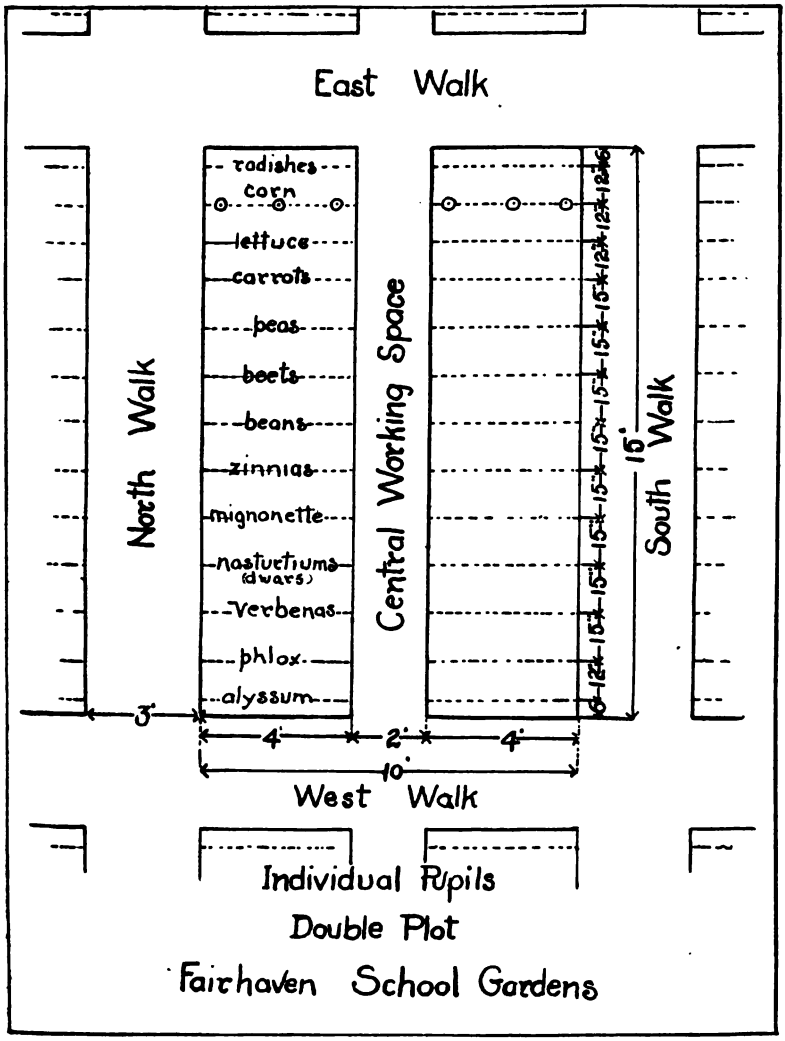

PLAN OF SCHOOL GARDEN, FAIRHAVEN, MASS.

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fresh vegetables were carried home, either to sell to numerous patrons, or to garnish the family table.

While friends have enjoyed the fragrance of the great variety of flowers, many an invalid's room has been brightened by the glow of a bunch of nasturtiums or stately zinnias.

Note books containing descriptions of how the children prepared the soil, method of planting, dates of sowing and harvesting have been diligently kept by the boys and girls. One little pupil writes, "On July 12, 1905, I took thirteen good sized heads of lettuce, seven turnips, about one quart of peas, and also picked a large bouquet of candytuft and bachelor's buttons." Other books relate similar experiences.

The native ferns, which were brought to the school gardens last spring, pushed out from the soil strong and vigorous this year, in spite of the sunny corner in which they were located. Partly to conceal the outlines of an old fence and partly to shade the fern corner some of the native shrubs, such as varieties of viburnum, common elder and others which the boys brought from the neighboring woods, were planted. This wild garden, which now contains nine varieties of our common ferns and a few shrubs, is at present only a nucleus which we hope will be added to as the years go on.

Throughout the entire season this garden spot has attracted many visitors — strangers as well as friends — whose words of commendation were expressed for the order, neatness, and regularity which prevailed, as well as for the beauty and luxuriance.

The true worth and value of these school gardens have been demonstrated perhaps, this year, more than ever before.

In the spring of 1905 the Fairhaven Improvement Society offered prizes to boys and girls who would maintain flower gardens at their homes during the summer months. As a result of this offer eighty little people entered the competition. Many of these children had been nature students in the school gardens and, with the knowledge and experience there gained, were enabled to better understand the best method and most artistic manner of beautifying the home grounds, and whatever adds to the attractiveness of home environment tends to make each and every community a "Village Beautiful."

Thus the influence of the Fairhaven school gardens has already become far reaching.

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Children's Home Garden Reports.

BY ROGER NEWTON PERRY, WORCESTER, MASS.

(11 years old.) First Prize, 1905.

My papa let me have a little land, 44 by 25 feet. He let me use the horse and plow to begin my garden. This was April 1.

Last fall the ground was covered with horse manure. I plowed this in, then took my spade, rake, and hoe and made the ground smooth. This took me a long time for I got tired after working a while.

I made me a hotbed out of an old window and frame, 2 by 3 feet, putting horse manure into it first and then dirt. Grandpa gave me my seeds.

April 22 I sowed cabbage, lettuce, and tomato seed in my hotbed. April 19 sowed sweet peas two inches deep, and radishes one-half inch. April 24 sowed Gradus peas two and one-half inches deep and two rows of beets one inch deep. April 29 planted corn, six kernels in a hill, and sowed parsley, parsnip, and turnip seeds two and one-half inches deep.

May 4 planted potatoes. I cut my potatoes leaving two eyes on a piece and planted one piece in a hill. May 15 set cabbage and lettuce raised in my hotbed and planted, in hills, my pole beans. I put a pole six feet high to each hill.

June 6 sold my radishes and thinned my beets. June 15 chickens got out and ate my lettuce up. Oh! but I was mad. June 29 ate first beet from my garden.

July 25 dug trench a foot deep, put in three inches manure, covered over four inches of dirt, and set in celery plants that grandpa gave me. I banked it with dirt to the leaves when it was six inches high; as fast as it grew I kept it banked.

My papa bought the cornstalks for the horses. I raised my vegetables to sell and not for exhibition. I have made $9.91 on my garden and put this money in the bank. I hope the others have done as well.

October 16, 1905,

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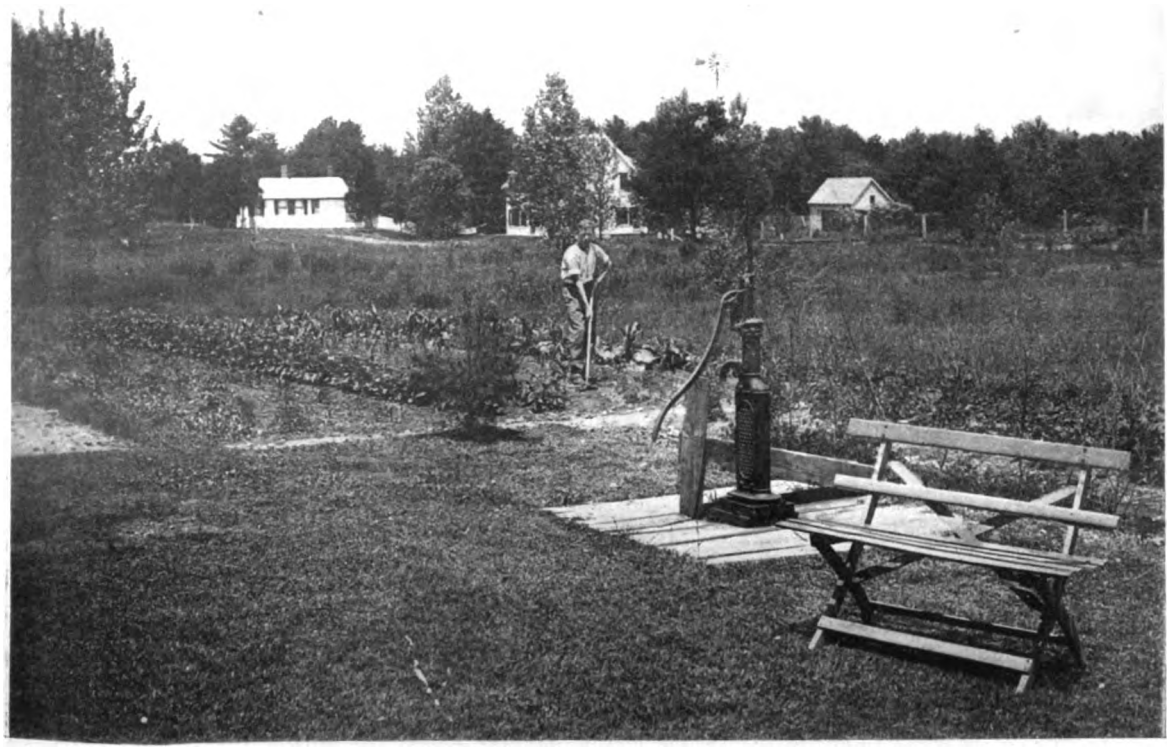

ARTHUR F. RICHARDSON'S GARDEN, HAMILTON, MASS.

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My Home Garden at Hamilton.

BY ARTHUR F. RICHARDSON, NINTH GRADE, COBBETT SCHOOL, LYNN.

Second Prize, 1905.

Last spring, on April 19, my father bought a cottage in the country. The first thing I did was to try to rid the long narrow strip we were to use as a garden of witch grass and stones. After hiring a man to plough, harrow, and furrow, I took the tufts that had been thrown one side, shook all the soil out, buried some deep and some I carried to another part of the grounds, leaving them upturned to rot. My father bought me a quarter of a cord of old stable manure which I put in each row or hill just before planting. Over this put a little soil, the seeds, more soil, and almost at the top, a little dry fertilizer.

About half way, I dug a trench taking out all the loam and gravel about three feet down, filled up the trench with the very numerous stones I took out, sifted ashes in between, and brought several wheelbarrow loads of gravel from a pit near by; making a fine solid walk through the centre of the garden.

May 1 I planted one row of low growing Excelsior peas that had been soaked an hour, using a line with a stick at either end so that the row would be straight. The following Saturday some were up, but not finding them thick enough to suit me I pushed down some more peas in the same row. Also planted lettuce, cucumbers, Black Wax, and Six Weeks beans.

I enriched and raked a long bed for the school flower seeds, beets, and lettuce. This bed I made very fine, working in the manure and fertilizer with my hands. Planted the seeds in short rows the width of a board apart. The board I also used to make my rows straight. Directly in front of the pump I planted sweet peas so that they might catch all the waste water. Several times during the summer I dug in wood ashes about the roots, producing a great quantity of flowers.

The beets, kohlrabi, and four kinds of tomato plants were given me. I was careful to dip their roots in water before transplanting using only the dry fertilizer for the tomatoes which I set about a foot and a half apart. I did not support them except with a hay mulch after the fruit began to turn. Some one suggested planting squashes in the center of each hill in the first row of corn, as there was a large empty field for them to run in. This proved wise, for we matured and ripened nineteen handsome squashes as well as had the usual amount of corn in that row.

I continued planting and hoeing for several Saturdays. It being my first garden I was determined no weeds should hurt the looks or take the

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goodness from the soil, but at first it seemed as if witch grass and stones grew faster than crops. The small striped yellow bug that appeared on the cucumbers and squashes I powdered every morning early, with bug death. I found this made them grow as well. Cutworms troubled the peas and flowers. Those I hunted and killed.

In June an avalanche of rose bugs attacked us, doing great damage to everything. We picked them off by hundreds. After a few days they disappeared leaving the foliage of the beans a sorry sight. I made a mistake planting sunflowers with pole beans as the sunflowers took all the richness from the soil. July 1 we ate our first products of the garden, half a peck of peas, from then on every day we had some vegetables from the garden, picking the last string beans on October 1, from a late planting.

I used a coarse rake to hoe the peas with at first. When they reached maturity I pulled up the vines, spread them on top of the compost heap, turning it all frequently during the summer. The poorest land I used for the potatoes. Next year I shall plant less corn and more potatoes because they did well this year with so very little attention.

I shall also plant chard as soon as I pull up the pea vines.

BY FRANK E. GRIFFIN, AYER, MASS.

Third Prize, 1905.

My garden was 18 by 48 feet. First I had it plowed and then furrowed; then I fixed beds for the lettuce and turnips and put some fertilizer on the soil and mixed it in well; then I put four or five seeds in a hill or I scattered them along in the beds; then I raked the seeds into the soil and fertilizer. My beds and hills were about four or five inches above my paths.

I planted my garden on the 30th of May; being so dry it did n't come up until about three weeks after, and my cucumbers had to be planted again. I had a little difficulty in keeping the weeds out because they seemed to want to grow better then they should.

I had to transplant my lettuce, marigolds, and asters, and I also transplanted my poppies as I got the envelopes which the seeds were in mixed. I had five dozen of corn, twenty heads of lettuce, twenty-four cucumbers, one-half bushel turnips, and one bushel tomatoes.

My flowers did n't need much care except a little weeding and watering now and then. They were in the shade in the afternoon and got the morning sun.

October 28, 1905.

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FRANK E. GRIFFIN'S GARDEN AYER MASS.

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BY JOSEPH MANNING PERKINS, LYNN, MASS.

(15 years of age.)

My garden is at Middleton, Mass. I go there every summer so I have a good chance to care for my garden. This year I kept a diary and put in it a full account of the work I did in my garden.

About the first of April I plowed the ground with a hand plow. Afterward I leveled it off with a rake, picked out all the stones and roots and made a stone border between the garden and the road.

I planted my peas, lettuce, radishes, and sage on April 8, 1905. I was careful not to plant them too thick or too deep. I watered the whole garden with the hose. In two weeks my peas were an inch high. On Saturday, May 6 our woods got afire and when the neighbors came to help put it out they walked over part of my garden. After the fire was out I hoed the earth around the peas and thinned the lettuce and radishes. Some of my radishes were ready to eat by May 20. My peas were ready to eat by the first of July and I had about a peck from my garden.

The limited space I could have prevented me from planting corn or potatoes. I had all the radishes and lettuce we could use. I had ninety-six healthy sage plants and they yielded sage enough to make twenty-five or thirty large bunches which I shall sell at Thanksgiving time at five cents a bunch.

My folks have promised me a larger garden next spring where I shall plant all kinds of vegetables.

October 28, 1905.

My Gardens.

BY FRANK A. WOODS, GROTON, MASS.

(Nine years of age.)

I want to tell you about my two gardens. My home garden is twenty feet long and fifteen feet wide. The rows are four feet long and eight inches apart; this is planted with flowers such as two kinds of golden glow, hardy phlox (pink and white), rosebushes, pansies, wallflowers, balsams, verbenas, asters, snapdragons, nasturtiums, morning glories, and a few geraniums. The remainder is planted with Boston marrow squashes of which I raised 350 pounds.

My school garden is twenty feet long and sixteen feet wide; this I had planted with radishes, parsnips, carrots, turnips, pumpkins, summer squashes, Hubbard squashes, muskmelons, watermelons, cucumbers, peas, pole beans, lettuce, onions, beets, and tomatoes. These rows are eight inches apart.

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Prizes and Gratuities Awarded, 1905.

SCHOOL GARDENS.

Cobbett School, Lynn, Mass., first prize	$12 00
Mill Garden, Groton, Mass., second prize	10 00
Lincoln School, Brookline, Mass., third prize	8 00
Fairhaven Schools, Fairhaven, Mass., Honorary Mention	
Sewall School, Brookline, Mass., Honorary Mention.	

HOME GARDENS.

Roger N. Perry, Worcester, first prize	$5 00
Arthur F. Richardson, Lynn, second prize	4 00
Frank E. Griffin, Ayer, third prize	3 00
Henry L. Brown, Ayer, fourth prize	2 00
Joseph M. Perkins, Lynn, fifth prize	1 00
Harold H. Woods, Groton, sixth prize	1 00
Harold White, Reading, seventh prize	50
Harold Danforth, Reading, eighth prize	50
Frank A. Woods, Groton, ninth prize	50
John A. Loring, Reading, tenth prize	50

CHILDREN'S HERBARIUMS.

Ruth H. Bird, 24 flowering plants	$ 50
Edna F. Bowles, flowering plants	50
Lilla Brodie, 38 flowering plants	1 14
Edna Chaffin, flowering plants, leaf sprays, and ferns	8 30
Una Chaffin, flowering plants and ferns	5 75
Austin W. Cheever, flowering plants, grasses, and sedges	2 53
Ruth W. Fisher, flowering plants and ferns	3 85
M. Isabel Floyd, flowering plants	50
Helen E. James, flowering plants	1 32
Agnes Johnson, flowering plants	50
Lois A. Leavitt, flowering plants and ferns	3 55
Lincoln School, Brookline, collection of insects	1 00
Slanyd Markoe, ferns	95
Gladys A. Mason, flowering plants	3 85
Sewall School, Brookline, collection of garden weeds	50
Frances L. Webb, flowering plants	48
Irving N. Whittier, flowering plants	1 47
Barbara Williams, flowering plants	78
Louise F. Zirngiebel, ferns	2 10

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NATIVE PLANTS AND FERNS.

April 29.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:
1st, Mrs. Arthur Clark, $5; 2d, Miss Isabelle C. Shattuck, $4.

June 3–4.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:
1st, Mrs. Arthur Clark, $5; 2d, Grade 8, Franklin School, East Weymouth, $4.

June 24–25.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:
1st, Miss Isabelle C. Shattuck, $5; 2d, Mrs. Arthur Clark, $4.

July 8–9.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:
1st, Miss Isabelle C. Shattuck, $5; 2d, Mrs. Arthur Clark, $4.

July 22.

NATIVE FERNS.— Collection of named species and varieties:
1st, Miss Isabelle C. Shattuck, $5; 2d, Chester C. Kingman, $4.
Gratuity:
Geo. E. Davenport, Display of ferns not entered for prize, $3.

August 12.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:
1st, Miss Isabelle C. Shattuck, $5; 2d, Chester C. Kingman, $4.

September 14–17.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:
1st, Chester C. Kingman, Reading, $5.

The amount appropriated for the committee during the year was $225.00 and the amount expended for prizes and gratuities, $149.57, leaving a balance of $75.43.

HENRY SAXTON ADAMS,
CHARLES W. JENKS,
W. E. C. RICH,
WM. P. RICH,
Miss MARY RODMAN,
} *Committee on School Gardens and Native Plants.*

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REPORT OF THE DELEGATE TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1905.

The work of the Board of Agriculture during the past year has been conducted with vigor and with seeming profit to the state.

The annual summer meeting was held at Lowell on the grounds of the Middlesex North Agricultural Society on Tuesday, July 25th, and an admirable programme was arranged by the Secretary of the Board. Prof. Waugh illustrated and explained the preparation of Bordeaux Mixture for the prevention of fungous diseases and also showed various kinds of fruit packages, explaining the advantages of each.

P. M. Harwood, agent of the Dairy Bureau, demonstrated the working of the Babcock tester, testing samples of milk that were brought to him for the purpose; he also explained the sanitary handling of milk and its importance. If the farmer is expected to carry out all the careful details which he suggested, the consumer being benefited should demand that the producer receive his just reward.

Mr. W. D. Rudd demonstrated the most approved modern methods of killing and preparing poultry for the Boston market.

Prof. Wm. H. Caldwell, Secretary of the American Guernsey Cattle Club, gave a running lecture on the points of a dairy cow and how to select one, illustrated from animals of the dairy and beef types that were before him.

This was followed by an address by Hon. N. J. Batchelder, Ex-Governor of New Hampshire, and several others.

At the close of the meeting, the Board and others in attendance were invited to visit the famous C. I. Hood farm to inspect its herds of Jersey cows and Berkshire pigs; all the arrangements of the stables are excellent and well worthy a visit.

The attendance at this meeting was very large. The usual crop reports have been published commencing with the month of May; special articles have been appended to these reports, as follows:

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May. The management of Mowings, by Prof. Wm. P. Brooks, Amherst, Mass.

June. How to supplement a short Hay Crop, by Prof. Chs. S. Phelps, Sup't. Grassland Farms, Chapinville, Conn.

July. Bush Fruits, by Prof. Fred S. Card, Prof. of Horticulture, R. I. College of Agriculture and Mechanic Arts.

August. Poultry Housing, by John H. Robinson, Editor of Farm Poultry, Boston, Mass.

September. Swine Growing, by A. A. Southwick, Farm Sup't., State Insane Asylum, Taunton, Mass.

October. Clean Milk, by P. M. Harwood, Gen'l. Agent, State Dairy Bureau.

There have also been issued the following Nature Leaflets, with illustrations:

Leaflet 28. The Garden Toad, by A. H. Kirkland.
" 29. School Gardens.
" 30. Planting and care of the School Garden.
" 31. Crops for the School Garden.
" 32. Results of School Gardening.

These, from 29 to 32 inclusive, were by H. D. Hemenway, Director School of Horticulture, Hartford, Conn.

The public winter meeting of the Board was held at Worcester, December, 5, 6, 7, at Horticultural Hall. An excellent list of lectures was furnished, as follows:

Market Gardening, by Henry M. Howard, West Newton, was admirable, giving in careful detail this important branch of horticultural industry. He also emphasized the importance of strict accounts, keeping exact memoranda of expenses and profits, to determine what crops were most desirable to grow.

The Soil; importance of its character for the culture of fruit, by Geo. T. Powell, Pres't. of the Agricultural Experts Ass'n, New York City, was an excellent paper, and if its recommendations were followed, the apple crop would be greatly improved. The keynote of the paper was fertilization, and good cultivation to prevent off-years; the fertilization to keep up the high tone of the orchard, and add color to the fruit. In the course of his lecture he cited the case of an old orchard planted by his father, fifty-seven years ago. These trees were planted in sod and bearing crops

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regularly in which was a large percentage of inferior fruit. For several years it has been under high tillage with crimson and red clover sown annually at the rate of fifteen lbs. seed to the acre, in June or early July, and ploughed in each spring, with the result that the soil has steadily improved, and the crops of 1904 and 1905 have never been excelled in quantity or quality and have never sold for so high value.

Agricultural or Technical Education by Dr. W. E. Stone, Pres't. Purdue University, Lafayette, Indiana.

Dairy Precept and Dairy Practice, by Dr. Joseph L. Hills, Director of Agricultural Experiment Station, Burlington, Vermont.

A campaign for Rural Progress, by Kenyon L. Butterfield, M. A., Pres't. R. I. College of Agriculture and Mechanic Arts, Kingston, R. I. The high reputation of the author is a guarantee of the excellence of this paper.

The relation of Nitrogen to fertility, by Dr. C. D. Woods, Director Agricultural Experiment Station, Orono, Maine. This was the closing lecture and of special interest to practical cultivators.

In the afternoon Mr. Chs. W. Wood invited the Board to visit his place, Crescent Farm, in Shrewsbury. Mr. Wood is President of the New England Holstein-Friesian Ass'n. In his large barn were seen fine specimens of this class of stock, which are very large producers of milk. Mr. Wood described his method of feeding and care of his stock, the appearance of which proved his success.

WILLIAM H. SPOONER,
Delegate.

December 30, 1905.

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REPORT OF THE INSPECTOR TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1905.

To the State Board of Agriculture,

GENTLEMEN:— I have endeavored to keep myself reasonably familiar with the affairs of the Massachusetts Horticultural Society during the year 1905, and feel sure that the management is deserving of praise for the excellent work that it has conducted in its efforts in behalf of bettering our horticulture, so far as the personal aims and money at command will allow.

The $600 bounty which the society has received from the State has certainly been put to uses of a high order. So much more money, received from endowments (not nearly as much as they could wisely handle) has been expended than the $600, upon excellent lines of awards by premiums, by medals, certificates of merit, many lectures, out-of-door exhibitions in practical forms of work, etc, etc., that I, as your Inspector, have only words of praise for the Massachusetts Horticultural Society.

Their hall exhibitions have been of varying size, as the management chose to have them, and they have been many. Some have filled their large and beautiful building, and have been of so exquisite an order that they must have proved a delight to many, at the same time that they were sources of much instruction to those who go there to learn.

The society's library and its handsome surroundings have both been improved during the past year.

The liberality and energy of their president has been marked, and happily he is just reëlected for the coming year.

Every encouragement that this Board can give to the Massachusetts Horticultural Society will be deserved.

Respectfully submitted,

FRANCIS HENRY APPLETON,
Inspector.

29, November 1905.

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REPORT OF THE COMMITTEE ON LECTURES AND PUBLICATIONS FOR THE YEAR 1905.

BY J. WOODWARD MANNING, CHAIRMAN.

The following lectures were given during the year:

January 14. Some Recently Introduced Weeds. By Merritt L. Fernald of Cambridge, Mass.

January 21. Forest Planting for Profit in Massachusetts. By Theodore F. Borst of Boston, Mass.

January 28. General Discussion on Fruit. Opened by E. W. Wood of West Newton, Mass.

February 4. Findings of an orchard Survey in Western New York, with Stereopticon illustrations. By Prof. John Craig, Ithaca, N. Y.

February 11. Dwarf Fruit Trees: their uses, propagation, and management. By Prof. F. A. Waugh, Amherst, Mass.

February 18. Bacteria as Fertilizers, with Stereopticon Illustrations. By Dr. George T. Moore, Washington, D. C.

February 25. General Discussion on Flowers. Opened by J. Woodward Manning of Reading, Mass.

March 4. Some Aspects of Hardy Flower Culture. By A. Herrington of Madison, N. J.

March 11. The Return to Nature. By Miss Maud Summers of Cambridge, Mass.

March 18. General Discussion on Vegetables. Opened by W. W. Rawson of Arlington, Mass.

During these lectures the attendance has noticeably increased and on the occasion of Dr. Geo. T. Moore's address the capacity of the Lecture Hall was taxed to its limits. The inauguration of a series of Discussions seemed to meet with approval and renewed interest, and your committee has felt justified in extending this factor in the programme of lectures for the ensuing year.

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Your committee further reports the publication of part II of the Transactions of the Society for 1904 and part I for 1905; the schedule of Prizes for the year 1906; and a preliminary Schedule sent out in advance of the regular Schedule of Prizes to enable competitors to make proper preparation for the earlier exhibitions of the year. The Report of the Committee on School Gardens has been in large demand during the year and this has been met by the issuance of separates of this report.

Respectfully submitted,

J. WOODWARD MANNING,
JAMES H. BOWDITCH,
JOHN A. PETTIGREW,
EDWARD B. WILDER,
E. W. WOOD,
Committee.

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REPORT OF THE SECRETARY AND LIBRARIAN FOR THE YEAR 1905.

The Secretary and Librarian respectfully presents the following report for the year 1905:

The broadening of interest in the exhibitions of the Society on the part of the commercial growers and of the various associations devoted to special lines of floricultural productions has been a noteworthy feature of the work of the last two years. All of these have received a cordial welcome and their coöperation has been greatly appreciated.

The Society should be broad enough in its aims to include all who are engaged in the work of extending and developing the horticultural education of the community. It should give the hand of fellowship to the amateur, the professional, and the commercial elements, all of whom should find in our halls a generous encouragement.

While the "Flower Show" still continues to be our leading method for the advancement of horticulture in the community and is probably as potent an influence in sustaining this interest as any that at present can be devised, it may be, in order to maintain the leadership of the Society in horticultural matters, that some additional features of a practical nature may well be adopted in the new years which await us.

In no period of our history has there been a wider interest in general horticulture than at present and the inclination towards the rural and suburban life is very pronounced. In the moulding of this tendency the horticultural societies of the country have been a strong factor and, perhaps, in this direction their influence can be still further increased.

In accordance with the vote of the Society at the annual meeting of 1904 an amendment to the Charter was approved by the Legislature of the State in February. This amendment authorizes the

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Society to choose its Treasurer and Secretary in such manner as its By-laws may from time to time provide.

In the early years of the Society these two offices were elective, but from the year 1876 until 1903, by a doubtful interpretation of the Charter, they were filled by appointment by the executive management. This latter method having been declared by eminent counsel as contrary to the requirement of the Charter it was necessary in framing the new By-laws of 1904 to return to the former usage until the Charter could be so amended as to allow of the appointment of the Treasurer and Secretary by the Board of Trustees.

This change in the Charter necessitated several amendments to the By-laws which were approved by the Society at the last annual meeting, together with an amendment authorizing the Board of Trustees to appropriate an amount sufficient to cover the annual appropriations for prizes and gratuities.

The publications for the year and the dates of issue are as follows:

February 3. Schedule of Prizes and Exhibitions, 56 pages.

October 18. Transactions, 1905, Part I, pages 1–105.

November 3. Transaction, 1904, Part II, pages 203–374 and plates 15–23.

By the John C. Chaffin bequest, received the present year, the income of $1000.00 will be annually devoted to the furtherance of his special interest in roses.

The many miscellaneous inquiries for information on horticultural subjects have received the interested attention of the Secretary and have been answered to the best of his ability. In this connection the Secretary is pleased to acknowledge the assistance received from the chairmen and members of the various committees of the Society as well as from its valuable library.

The Library.

At the suggestion of the Library Committee especial attention has been given during the present year to the arrangement of further exchanges of publications with horticultural societies and scienti-

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fic and educational institutions of this country and of Europe. Continued effort also has been made to secure by purchase complete sets of such horticultural periodicals as may yet be wanting in the library.

The result has been satisfactory and encourages further endeavor in this direction. The following foreign and American periodical publications have been added during the year:

Annales de la Société horticole, vigneronne, et forestière de l' Aube, Années 1866–1904.

Annales de la Société d' Horticulture de la Haute Garonne. Volumes 47–51, 1900–1904.

Bulletin de la Société d' Horticulture et de Viticulture d' Epernay. Volumes 1–31, 1873–1904.

Bulletin de la Société d' Horticulture de Genève. 1903–1905.

L' Horticulture Moderne. Bourg-La-Reine, 1905.

The Journal of the Board of Agriculture. London. Volume 12, 1905.

Rosen Zeitung. Volumes 1–19. 1886–1904.

Möllers Deutsche Gärtner-Zeitung. Volumes 1–15, 1886–1900.

The Farmers' Register. Richmond and Petersburg, Va. Volumes 1–10, 1833–1842.

In June an exchange of duplicate material with the Library of the University of Wisconsin resulted in the acquisition of 63 annual reports of horticultural and agricultural societies and 54 miscellaneous volumes and pamphlets. All were desirable additions to the library, many of them being early reports now difficult to obtain, and fill many gaps in our collection.

A hundred or more miscellaneous volumes which have been laid aside for a number of years by reason of damage, incompleteness, or awaiting additional parts have been repaired, completed, and bound as far as practicable, and all restored to the library shelves.

An unusually large proportion of the Library Appropriation has been devoted this year to binding, so that all current periodicals are now bound up to date.

The number of accessions including bound volumes and pamphlets has been 1236; rather more than the average of recent years. Progress has been made in the reclassification of the library and a

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new system of arrangement adopted which it is hoped to complete in the ensuing year.

By the continued liberality of the publishers of the various horticultural periodicals and agricultural papers our reading tables are kept well supplied and these privileges are made use of to a considerable extent by our members.

Other noteworthy gifts to the library during the year have been made by the following named persons whose generous interest is greatly appreciated.

February 7 Nathaniel T. Kidder, Esq. presented a case of books and pamphlets. Of especial interest in the lot were J. A. Barral, Dictionnaire d' Agriculture in four volumes, 1886–1892, and Chalvin et Compagnie's Catalogue. Grenoble, 1789. Many of the others are valuable as duplicates.

August 15 Hon. Aaron Low presented a large number of agricultural and experiment station reports and bulletins among which were found several important additions.

October 7 a gift to the library of $50.00 was received from Miss Caroline L. W. French to be expended for books.

In December five handsome oak reading tables for the alcoves of the library were presented by the same prominent and interested member of the Society whose gift last year was so acceptable. We wish he had permitted his name to be mentioned in this connection.

The library is undoubtedly the largest and most valuable collection of horticulture literature in America, but there are yet many deficiencies to be filled which will require the continued liberal support of the Society.

WILLIAM P. RICH,
Secretary and Librarian.

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REPORT OF THE TREASURER FOR THE YEAR 1905.

MASSACHUSETTS HORTICULTURAL SOCIETY, *in account current with* CHARLES E. RICHARDSON, *December 31st, 1905.*

DR.

To amount paid Sundries charged to Real Estate			$901 17
" " " for Exhibition Ware			180 60
" " " " Library, appropriated by Society	$400 00		
" " " from Income of John S. Farlow Fund	93 17		
" " " " Income of J. D. Williams French Fund	255 18		
			748 35
" " " for Interest on funds for prizes and other funds credited opposite			2,101 61
" " " " Heating	1,636 56		
" " " " Lighting	1,331 29		
" " " " Water Rates	29 40		
" " " " Labor	1,872 65		
" " " " Stationery, Printing and Postage	1,587 83		
" " " " Insurance	148 19		
" " " " Incidentals	512 80		
" " " " Repairs	623 48		
" " " " Committee on Lectures and Publications	210 00		
" " " Salaries, Treasurer, Secretary and Assistants	3,712 00		
" " " " Salaries Committee on Plants and Flowers	346 00		
" " " " Salaries Committee on Fruits	138 95		
" " " " Salaries Committee on Vegetables	192 00		
" " " " Salaries Committee on Prizes	250 00		
" " " " Tax on Real Estate, South Boston	150 40		
" " " " Electric Power	43 68		12,785 23

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For *Prizes awarded in 1904*, viz.		
Prizes for Plants and Flowers	3,470 00	
" " Fruit	958 00	
" " Vegetables	904 92	
" " Gardens and Greenhouses	310 00	
" " School Gardens and Native Plants	225 00	
H. H. Hunnewell, Prizes for Rhododendrons	105 00	
Miss Sarah B. Fay Special Prize	50 00	
Gardeners' and Florists' Club " "	40 00	
M. A. Patten " "	10 00	
Peter Fisher " "	10 00	
William Nicholson " "	10 00	
		6,092 92
		22,809 88
Balance of Cash December 30th, 1905		12,992 90
		$35,802 78

CR.

By Balance of account rendered December 30, 1904			$12,388 80
" Received from Building use of Halls		1,248 29	
" " " Annual Exhibitions	$2,247 50		
Less Expenses,	1,105 38		
		1,142 12	
" " " Admissions and Assessments		1,810 00	
" " " Mount Auburn Cemetery		1,918 24	
" " " State Bounty		600 00	
" " " Sales of Transactions		17 00	
" " " Interest on Bonds	$9,665 00		
" " " " " Stock	1,200 00		
" " " " " Bank Balances,	210 72		
		11,075 72	
" " " Executor of J. C. Chaffin, Estate for prizes		1,000 00	
" " " Chicago, Burlington and Quincy R. R. Co. for Matured Bond		1,000 00	
" " " Sale of 150 rights General Electric Stock		1,336 00	
Amounts carried forward		$21,147 37	$12,388 80

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Amounts brought forward		$21,147 37	$12,388 80
" " " Miss Caroline L. W. French, for Books		50 00	
" " " Mrs. Anna C. Ames, for Special Prize		65 00	
" " " Boston Co-operative Flower Market			
" " " Music Hall Place, for Special Prize		40 00	
" " " Peter Fisher, for Special Prize		10 00	
" Interest credited funds charged opposite			
Samuel Appleton	Fund . $50 00		
John A. Lowell	" . 50 00		
Theodore Lyman	" . 550 00		
Josiah Bradlee	" . 50 00		
Benjamin V. French	" . 25 00		
H. H. Hunnewell	" . 200 00		
W. J. Walker	" . 117 72		
Levi Whitcomb	" . 25 00		
Benjamin B. Davis	" . 25 00		
Marshall P. Wilder	" . 50 00		
John Lewis Russell	" . 50 00		
Francis Brown Hayes	" . 500 00		
Henry A. Gane	" . 50 00		
John S. Farlow	" . 100 00		
J. D. Williams French	" . 200 00		
Benjamin H. Pierce	" . 32 00		
John C. Chaffin	" . 26 89		
		2,101 61	
			23,413 98
			$35,802 78

CHARLES E. RICHARDSON,
Treasurer.

Approved:

WALTER HUNNEWELL,
GEORGE F. FABYAN,
ARTHUR F. ESTABROOK,
} *Finance Committee.*

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ASSETS.

Real Estate	$517,882 03	
Furniture and Exhibition Ware	9,537 51	
Library	43,232 98	
Stereotype Plates and Copies of History	243 50	
2,000, Kansas City, Clinton & Springfield R. R. Bonds	1,980 00	
10,000, Lake Shore & Michigan Southern R R. Bonds	10,415 25	
21,000, City of Newton, Bonds	24,228 75	
50,000, Atchison, Topeka & Santa Fe R. R. bonds	44,693 25	
50,000, Chicago, Burlington & Quincy, "Nebraska Extension" R. R. Bonds	50,012 50	
10,000, Chicago & West Michigan R. R. Bonds	9,987 50	
25,000, Kansas City, Fort Scott & Memphis Consols	27,523 75	
50,000, Chicago, Burlington & Quincy, "Illinois Division" R. R. Bonds	51,625 00	
8,000, Boston & Maine R. R. Bonds	8,710 00	
5,000, West End Street Railway Bonds	5,162 50	
150 Shares, General Electric Co, Stock	9,680 70	
W. A. Hayes & A. P. Loring, Trustees	3,488 76	
Cash	12,992 90	
		$831,396 88

LIABILITIES.

Samuel Appleton	Fund,	$1,000 00
John A. Lowell	"	1,000 00
Theodore Lyman	"	11,000 00
Josiah Bradlee	"	1,000 00
Benjamin V. French	"	500 00
H. H. Hunnewell	"	4,000 00
W. J. Walker	"	2,354 43
Levi W. Whitcomb	"	500 00
Amounts carried forward		$21,354 43

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Amounts brought forward		$21,354 43		
Benjamin B. Davis	"	500 00		
Marshall P. Wilder	"	1,000 00		
John Lewis Russell	"	1,000 00		
Francis Brown Hayes	"	10,000 00		
Henry A. Gane	"	1,050 00		
John S. Farlow	"	2,506 88		
J. D. Williams French	"	5,088 97		
Benjamin H. Pierce	"	800 00		
John C. Chaffin	"	1,026 89		
			$44,327 17	
Prizes Awarded in 1905, Payable in 1906			6,506 00	
Gift of Miss Caroline L. W. French for books			50 00	
Mrs. Anna C. Ames, Special Prize			65 00	
Boston Co-operative Flower Market				
Music Hall Place, Special Prize			40 00	
Gardeners' & Florists' Club, Special Prize			10 00	
				50,998 17
Surplus				780,398 71
				$831,396 88

CHARLES E. RICHARDSON,
Treasurer.

MEMBERSHIP OF MASSACHUSETTS HORTICULTURAL SOCIETY, DECEMBER 30th, 1905.

Life Membership per last report	674		
Added in 1905	45		
Commuted from Annual	1		
	—	720	
Deceased	20		
		—	700
Annual members per last report	173		
Added in 1905	10		
Reinstated	2		
	—	185	
Resigned	1		
Commuted to Life	1		
Dropped for nonpayment of assessment for two years	3		
Deceased	7		
	—	12	
		—	173
Present membership			873

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INCOME FROM MEMBERSHIP.

45 New Life Members @ $30	1,350 00
1 Commuted to Life @ $20	20 00
10 New Annual Members @ $10	100 00
2 Reinstated @ $4	8 00
Assessments	332 00
	$1,810 00

CHARLES E. RICHARDSON,
Treasurer.

AUDITOR'S CERTIFICATE.

28 State Street, Boston, March 30th, 1906.

To the Finance Committee of the
Massachusetts Horticultural Society,

Gentlemen: — In compliance with your request I have made a thorough audit of the books and general accounting affairs of the Massachusetts Horticultural Society for the year which ended with the 31st day of December, 1905, and herewith submit to you my report of the same.

REPORT.

I proved the correctness of the ledger, journal, and cash book and the small books tributary to the cash book, and saw that all balances were correctly carried forward. I examined and checked the vouchers and warrants representing the disbursements during the year and found the amount of cash required by the cash book upon the first day of January, 1905, to have been on hand, and also examined the securities of the Society and found that they were in all details in accordance with the requirements of the records. I traced all postings from the journal and cash book into the ledger and certify that the balance sheet taken from the ledger as of the 31st day of December, 1905, is a correct abstract and that the Treasurer's statement of the assets and liabilities of the Society upon said date is true to the best of my knowledge and belief.

In short, I satisfied myself that the work in connection with the accounting affairs of the Society was being conscientiously and honestly performed, and that the books and papers of the Society were in their usual excellent condition.

Yours very respectfully,

ANDREW STEWART,
Examiner of Accounts.

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Dr. *Massachusetts Horticultural Society in account with the Proprietors of the Cemetery of Mount Auburn.* **Cr.**

For Sales and Improvements within the Cemetery for the year ending December 31st, 1905.

To cost of filling up and improving land at Mount Auburn for the year ending December 31st, 1905. The Horticultural Society being charged with their proportion of same:			By Sales in January		$ 564 75
			" " " February		10 00
Glen Avenue.			" " " March		1,280 00
			" " " April		265 00
169.2 days, man	$380 71		" " " May		820 00
65.9 days, man and horse	247 12		" " " June		10 00
12. days, man and two horses	63 00		" " " July		1,252 65
	$690 83		" " " August		380 00
			" " " September		30 00
			" " " October		2,395 00
			" " " November		1,131 60
			" " " December		345 00
				8,484 00	
One-fourth of $690.83 is	$ 172 70		Net amount received from Receiving Tomb	1,279 75	
Balance due Mass. Horticultural Society	1,918 24			9,763 75	
			Deduct for Annual Expenses	1,400 00	
			One-fourth of	8,363 75	
	$2,090 94				$2,090 94

E. and O. E.

BOSTON, December 31st, 1905.

JOHN L. DILL, *Treasurer.*

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THE MASSACHUSETTS HORTICULTURAL SOCIETY

To the PROPRIETORS OF THE CEMETERY OF MOUNT AUBURN. *Dr.*

To cost of filling up and improving land at Mount Auburn for the year ending December 31, 1905. The Massachusetts Horticultural Society being charged for its proportion of same.

Glen Avenue.

169.2 days, man	$380 71	
65.9 days, man and horse	247 12	
12 days, man and two horses	63 00	
	$690 83	
One-fourth of $690 83 is		$172 70

JAMES C. SCORGIE,
Supt. of the Cemetery of Mount Auburn.

MOUNT AUBURN, December 30th, 1905.

I certify the foregoing to be a true copy of improvements for the year 1905 as rendered by the Superintendent.

JOHN L. DILL,
Treasurer.

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THE ANNUAL MEETING, NOVEMBER 18, 1905.

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ANNUAL MEETING FOR THE YEAR 1905.

The Annual Meeting of the Massachusetts Horticultural Society for the year 1905 was held at Horticultural Hall, Boston, on Saturday, November 18, at twelve o'clock, noon.

The meeting was called in accordance with the By-laws for the transaction of business and for the election of officers, namely: a President, a Vice-President, a Treasurer, a Secretary, a Delegate to the State Board of Agriculture, a Trustee for two years, four Trustees for three years, and a Nominating Committee. Also several amendments to the By-laws were to be voted upon by the Society. A printed notice of the meeting had been mailed to the address of every member of the Society as it appeared upon the records of the Secretary.

President Estabrook presided and there were thirty members present at the opening of the meeting.

The President appointed Edward B. Wilder, J. Allen Crosby, and William P. Rich a committee to receive, assort, and count the ballots, and to report the number. He then announced the polls open until four o'clock.

The record of the Annual Meeting, November 19, 1904, was read and approved.

The President presented a recommendation from the Board of Trustees for the appropriation of $6700.00 for prizes and gratuities for the year 1906. The recommendation was unanimously adopted.

The following named gentlemen, recommended by the Board of Trustees, were elected Corresponding Members of the Society:

M. Maurice L. de Vilmorin, Paris, France,
M. Philippe L. de Vilmorin, Paris, France,
Mr. James Herbert Veitch, Chelsea, England,

all proposed by Professor Charles S. Sargent.

The President appointed William H. Spooner as presiding officer for the remainder of the meeting and announced a recess until four o'clock.

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At four o'clock the President, *pro tem.*, declared the polls closed, and the ballot committee proceeded to assort and count the votes, its chairman, Mr. Wilder, reporting the result of the ballot to the meeting.

The President, *pro tem.*, declared the following named persons to be the duly elected officers of the Society for the year 1906:

President,	ARTHUR F. ESTABROOK.
Vice-President (for two years),	WALTER HUNNEWELL.
Treasurer,	CHARLES E. RICHARDSON.
Secretary,	WILLIAM P. RICH.
Trustees,	OAKES AMES.
(for three years),	CHARLES F. CURTIS.
	WILLIAM H. ELLIOTT.
	ARTHUR H. FEWKES.
Trustee, (for two years),	JOHN LAWRENCE.
Nominating Committee,	JAMES H. BOWDITCH.
	ROBERT CAMERON.
	T. D. HATFIELD.
	CHARLES W. PARKER.
	WILLIAM H. SPOONER.

He also declared that the eight proposed amendments to the By-laws had all received the necessary two-thirds vote in their favor and were adopted.[1]

The meeting was then adjourned.

WILLIAM P. RICH,
Secretary.

[1] For a record of the amendments adopted see pages 116, 117, 120.

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NECROLOGY, 1905.

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NECROLOGY, 1905.

CHARLES H. SOUTHER died at his home in Jamaica Plain, Massachusetts, January 4, 1905.

He became a member of the Society in 1895 and was a frequent exhibitor of plants and flowers at its exhibitions.

HON. WILLIAM CLAFLIN, a member of the Society since 1867, died in Newtonville, Massachusetts, January 5, 1905, at the age of eighty-seven.

Mr. Claflin was born in Milford, Massachusetts, March 6, 1818. He was engaged for many years in the wholesale boot and shoe business in Saint Louis and Boston, and was actively interested in public affairs, serving several terms in the Legislature of Massachusetts between the years 1848 and 1860, and was elected Governor of the state in 1869. He served also two terms as representative to Congress in 1876 and 1878.

He possessed a beautiful estate at Newtonville, where he made his summer home, and took much pride in its horticultural adornment.

LUCIUS G. PRATT died at his home in West Newton, Massachusetts, February 6, 1905, at the age of eighty years. He became a member of the Society in 1871.

Mr. Pratt was born in Brattleboro, Vermont, May 3, 1824. He was actively engaged in business in Boston for many years, retiring in 1870. In the later years of his life he devoted himself to the management of various financial enterprises and was also actively interested in the affairs of his town and as a trustee of charitable institutions.

GEORGE W. WELD of Newport, Rhode Island, a member of the Society since 1883, died February 14, 1905.

WALTER RUSSELL of Arlington, Massachusetts, joined the Society in 1862 and from that date to the year of his death was

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actively engaged in its work. He was a member of the Committee on Vegetables from 1867 to 1883 and from 1895 to 1904, a service of twenty-seven years, and was also a member of the Committee of Arrangements for several years.

He was a constant contributor to the exhibitions of the Society of fruits and vegetables from his extensive farm in Arlington, and with his practical experience his services as a judge were of great value to the Society and were much appreciated by his fellow members on the committee.

Mr. Russell was born in Charlestown, Massachusetts, September 10, 1831, and died at his home in Arlington, February 21, 1905, at the age of seventy-four years.

Hon. George Sewall Boutwell, an Honorary Member of the Society since 1851, died at his home in Groton, Massachusetts, February 27, 1905.

Mr. Boutwell was born in Brookline, Massachusetts, January 28, 1818, and from a humble beginning, by the strength of his character and the force of his mental ability, was called to high offices in the service of his state and nation. He was Governor of Massachusetts in 1851 and 1852; was appointed Secretary of the Treasury by President Grant in 1869; and was elected to the Senate of the United States in 1873, continuing until 1877.

Always interested in agricultural matters he rendered efficient aid in the establishment of the Massachusetts State Board of Agriculture which was organized during his administration as Governor.

Henry Ranford Reed, a member of the Society since 1899, died in New York, March 14, 1905.

Mr. Reed was born in Chelmsford, Massachusetts, August 23, 1837. He came to Boston at the age of eighteen years and entered into the grocery business, afterward becoming identified with the firm of Nash, Spaulding & Co., sugar refiners, of which firm he was the senior partner at the time of his death.

J. Philip Rinn was elected to membership in the Society in 1882. He was born in Germany, August 21, 1837, and died in Boston, March 17, 1905.

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Mr. Rinn was a prominent architect of Boston, and among his creations in this vicinity are the Goddard Chapel Building of Tufts College and the residence of Francis B. Hayes at Lexington, a former president of this Society.

WILLIAM PAUL, a Corresponding Member of the Society since 1875, died at his home at Waltham Cross, Herts, England, March 31, 1905.

Mr. Paul was born June 16, 1822, at Church-gate, Cheshnut, England, where his father had established a garden in 1806. He succeeded to his father's business in 1847 and afterward removed to Herts, where he established in 1860 the celebrated Waltham Cross Nurseries, extending the business enormously. He was especially interested in roses and among the novelties he introduced the Magna Charta is the best known in this country.

To the world at large Mr. Paul was fully as well known as an author and writer on horticultural subjects. He published books on rose culture and on general gardening and was an interesting and instructive contributor to the horticultural press.

WILLIAM STURGIS HOOPER LOTHROP of Boston died in Ponce, Porto Rico, April 5, 1905, at the age of thirty-four years. He was elected a member of the Society in 1896.

JOHN PARKER, formerly of Roxbury, Massachusetts, died in Newtonville, April 16, 1905, at the age of eighty-nine years. He became a member of the Society in 1864.

Mr. Parker was born in Charlestown, Massachusetts, December 4, 1815. On the death of his father when he was seven years old he went to live with a farmer in South Reading (now Wakefield), where he remained until he was fourteen. He then entered the home of Samuel Williams of Roxbury as an apprentice to learn the gilder's trade, and was in the employ of Williams & Everett over sixty years.

While steadily attending to his business he spent many hours in his garden, raising fruits and flowers, and exhibited at Horticultural Hall many of his choicest productions. He took many prizes for his dahlias which he was especially fond of cultivating

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and remarked once that he had raised them for over fifty years. He grew also and exhibited gladioli and pelargoniums as well as other garden flowers and was always very careful to keep his stock pure and choice.

He attended every exhibition of the Society when his health permitted and wanted to visit the Spring Exhibition just three weeks before his death and dressed to go, but he was not strong enough to do it and gave it up, much to his disappointment.

Much could be written of his love for his plants and flowers, his care in cultivating, and the pleasure he took in sharing with others. His was a beautiful, Christian life and it is a pleasure to think that he can gratify his every desire for the beautiful in the Heavenly life to which he has passed.

By Mrs. Henrietta M. Parker.

Henry Hill Goodell, President of the Massachusetts Agricultural College at Amherst, died April 23, 1905. He was elected a Corresponding Member of the Society in 1900.

Dr. Goodell was born in Constantinople, Turkey, May 20, 1839. He served in the War of the Rebellion in 1862–63, and on his return took up the profession of teaching, and in 1886 was appointed President of the Agricultural College, holding this position until his death. In January, 1904, he gave a lecture before the Society on "Trees, Flowers, and Fruits of the East."

Joseph Jefferson, an Honorary Member of the Society since 1895, died at Palm Beach, Florida, April 23, 1905.

Mr. Jefferson was born in Philadelphia, February 20, 1829. Widely known through his histrionic attainments Mr. Jefferson was much interested in horticulture and was a lover of the beautiful in nature as well as in art.

Warren Fenno, who died in Revere, Massachusetts, April 27, 1905, had been identified with the Society since 1877.

He was born in Revere, December 2, 1854, and always made his home there, becoming actively interested in later years in all matters pertaining to the affairs of his native town. He was the Town Clerk for many years and was an authority on the local

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history of this locality. He was a fruit grower on a large scale for this part of the country and was a constant exhibitor of the products of his orchards at the exhibitions of the Society, taking many prizes as evidence of his skill and horticultural knowledge.

He had been a member of the Committee on Fruits since 1880, a period of twenty-five years, the present year as chairman, and was elected a Trustee of the Society at the last annual election.

HON. JOHN WARE FLETCHER, who was elected a member of the Society in 1871, died in Boston, April 27, 1905.

He was born in Norridgewock, Maine, in 1824, and at an early age started in business in Bangor, later removing to Boston where he was engaged in the insurance business for many years. He was a captain in the army in the early years of the Civil War and was twice elected Mayor of Chelsea, Massachusetts, 1871–72.

HON. ROBERT W. FURNAS of Brownville, Nebraska, a Corresponding Member of the Society since 1875, died June 1, 1905. He was President of the Nebraska State Horticultural Society from 1877 to 1883 and was Governor of the state in 1873–74. He came to Nebraska from Ohio in 1855 and was a pioneer in the development of the horticultural and agricultural interests of the great Northwest.

JOSHUA MONTGOMERY SEARS of Boston, a member of the Society since 1881, died at his summer home in Southboro, Massachusetts, June 2, 1905. Mr. Sears was born in Yarmouth, Massachusetts, December 25, 1854.

In addition to many other interests he took pleasure in horticultural matters, and the exhibitions of the Society were frequently enriched by the choice and rare productions of his greenhouses and gardens at Southboro.

ROBERT CHARLES WINTHROP, JR. died at his home in Boston, June 5, 1905, at the age of seventy-one years. Mr. Winthrop became a member of the Society in 1890. He was the son of the late Hon. Robert C. Winthrop, an early Honorary Member of the Society.

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FRANCIS WESLEY HUNT was elected a member of the Society in 1892. Mr. Hunt was born in Readfield, Maine, July 26, 1833, and died at his home in Melrose, Massachusetts, June 24, 1905. He descended from a family of agriculturists, and no doubt his interest in all things pertaining to this Society was the natural outcome of his early surroundings.

He was interested in his fruit trees and his garden and never a season went by but he had many hundred aster plants, which were without doubt his favorite flower. He took great pride in keeping his home place always attractive, adorning it with many plants and shrubs.

BY FRANCIS A. HUNT.

MICHAEL SULLIVAN died at his home in Revere, Massachusetts, July 4, 1905, at the age of sixty-five years.

Mr. Sullivan joined the Society in 1899. He was born in Ireland in 1840 and came to this country when a boy, making his home in Revere and engaging in the market gardening business which he followed successfully the rest of his life. He was prominent in the affairs of his town, serving as a member or chairman of the board of selectmen for a number of years. He was a member of the Committee on Vegetables for the years 1902, 1903, and 1904, the last year as its chairman, and was a Trustee of the Society in 1904.

HORACE B. TAYLOR, an old-time Boston merchant, and a member of the Society since 1860, died in Boston, July 17, 1905, in his ninetieth year.

Mr. Taylor was born in Newfane, Vermont, August 25, 1815, coming early in life to Boston to engage in business pursuits; and for many years the firm of Foster & Taylor was prominently identified with the business interests of the city.

LEANDER M. HASKINS of Rockport, Massachusetts, died at his home in that town, August 1, 1905, at the age of sixty-four. He became a member of the Society in 1904.

Mr. Haskins was a graduate of Dartmouth College in the Class of 1862 and later entered into business in Boston in which he was very successful. He owned a fine estate at Rockport and was much interested in its horticultural improvement.

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RHODES LOCKWOOD of Boston, a member of the Society since 1883, died August 3, 1905, at the age of sixty-five.

Mr. Lockwood was born in Charlestown, Massachusetts, in 1839. He was connected with the Davidson Rubber Company for many years. He had a fine estate in East Lexington where he made his summer home.

FREDERICK C. MOSELEY of Dorchester, Massachusetts, died August 9, 1905. He became a member of the Society in 1900.

HON. TIMOTHY THOMPSON SAWYER, a member of the Society since 1854, died at his summer home in Magnolia, Massachusetts, September 4, 1905, at the age of eighty-eight years.

Mr. Sawyer was born in Charlestown, Massachusetts, January 7, 1817, and was for many years engaged in business in Boston. He was Mayor of Charlestown in 1855, 1856, and 1857, State Representative in 1857, and Senator in 1858. He filled also many other offices of trust of a public and private nature. He was much interested in the antiquities of his native city and was a recognized authority in matters concerning its history.

FRANCIS HOWARD PEABODY of Boston died at his summer home in Beverly, Massachusetts, September 22, 1905, at the age of seventy-four. He was elected a member of the Society in 1893.

Mr. Peabody was born in Springfield, Massachusetts, October 9, 1831. He came to Boston at the age of sixteen and entered the banking office of John E. Thayer & Brother, to which firm he and his partners succeeded in 1865, under the name of Kidder, Peabody & Co., establishing a business of world-wide reputation.

He was a patron of the fine arts and the natural sciences, and his helpful interest was often manifested in a practical and substantial manner.

EDWIN F. LOCKE died in Amherst, New Hampshire, October 3, 1905. He joined the Society in 1901.

Mr. Locke was born in Charlestown, Massachusetts, January 9, 1847. Early in life he went to work for his father in Faneuil Hall Market, Boston, and for forty years, up to the time of his

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death, was associated with the firm of Isaac Locke & Company in the fruit and produce business.

JOHN CAPEN of Boston, another of the older members of the Society, died October 7, 1905, at the age of eighty-seven years. He was admitted a member in 1865. He was born in Sterling Massachusetts, September 8, 1818.

CALVIN W. SMITH of Grantville, Massachusetts, a member of the Society since 1880, died October 21, 1905.

JOSHUA C. STONE who died in Watertown, Massachusetts, October 22, 1905, was elected a member of the Society in 1894.

Mr. Stone was born in Watertown, May 8, 1835, and lived there all his life. He was a well-known market gardener and was much interested in the work of the Society, serving as a member of the Committee on Vegetables from 1899 to the time of his death. He took a prominent part in the meetings for the discussion of horticultural subjects and from his broad experience in practical work added much to the value of these gatherings.

REV. H. HONYWOOD D'OMBRAIN, a Corresponding Member of the Society since 1875, died at Ashford, Kent, England, October 23, 1905, in his eighty-eighth year.

Mr. D'Ombrain was born in Canterbury, England, May 10, 1818. In addition to his duties as a clergyman he was devoted to horticultural pursuits, and not only grew plants successfully but wrote about them interestingly and instructively. He was one of the founders of the National Rose Society and was for many years editor of the Rosarian's Year Book. He was also editor of the Floral Magazine during its existence.

DENYS ZIRNGIEBEL died at his home in Needham, Massachusetts, November 16, 1905, at the age of seventy-seven. He had been a member of the Society since 1862.

Mr. Zirngiebel was born in Neufchatel, Switzerland, in 1829, and came to this country in 1855 where he soon after took charge of the Botanical Garden of Harvard University at Cambridge, and in 1864 established himself in business at Needham.

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He was an expert horticulturist and a frequent exhibitor of his productions at the exhibitions of the Society. He was a member of the Committee on Plants and Flowers in 1866.

Mr. Zirngiebel was greatly interested in the carnation and was one of the earliest cultivators of the new creations of the French horticulturist, Alegatière, which were introduced into the United States about the year 1871. The most prominent among these were the Alegatière, red, La Purité, deep pink, and Mme. Carle, white. These were the best of their class at that time but were soon superseded by American raised seedlings.

Sometime during the 70's he introduced from France several new strains of pansies; the Bugnot, Cassier, and Trimardeau varieties. He was also one of the first to introduce the so-called French cannas and did much to popularize them, and was undoubtedly the first to import the Italian or Dammann varieties.

All new and improved varieties of plants were of great interest to him and many were tested at the earliest opportunity. A great many varieties of less importance than these mentioned, but all useful in their way, were first grown in the vicinity of Boston by him. He took great interest in asters, also, and was a pioneer in growing them in large quantities for the market. The strain known as Zirngiebel's White was of his own originating.

By Arthur H. Fewkes.

Francis Skinner, a member of the Society since 1864, died at his home in Boston, November 24, 1905. He was graduated from Harvard in the Class of 1862 and was a prominent merchant in Boston in the dry goods commission business. He was interested in the fine arts and in horticulture, and for many years was a regular exhibitor of the products of his gardens and greenhouses at the exhibitions of the Society.

Edward Atkinson, a member of the Society since 1865, died at his home in Brookline, Massachusetts, December 11, 1905, at the age of seventy-nine.

Mr. Atkinson was born in Brookline, February 10, 1827. He was greatly interested in matters of social and political economy and was a frequent contributor to the literature of these subjects.

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FREDERICK WILLIAM BURBIDGE, M. A., Curator of Trinity College Botanical Garden, died in Dublin, Ireland, December 24, 1905. He was elected a Corresponding Member of the Society in 1898.

Mr. Burbidge was born in Wymeswold, Leicestershire, England, March 21, 1847, and from boyhood was interested in natural history studies. After several years experience at the Kew Gardens he was appointed Curator of the Dublin Garden, a position he filled for twenty-six years.

In 1877 and 1878 he traveled in Borneo and other islands of the East Indian Archipelago in a search for botanical and horticultural novelties. The account of this eastern journey is interestingly recorded in his Gardens of the Sun, published in 1880. He wrote also several other books, the last being The Book of the Scented Garden, published the present year. He was an accomplished artist, botanist, and horticulturist, as well as an author, and made many valuable contributions to scientific and horticultural literature.

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*Communications to the Secretary, on the business of the Society, should be addressed to him at Horticultural Hall, Boston.

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James, Mrs. Ellerton, Milton.
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Lodge, Richard W., Boston.
Loftus, John P., Dorchester.
Loomis, Elihu G., Bedford.
Loring, Augustus P., Beverly.
Loring, David, Boston.
Loring, Mrs. William Caleb, Beverly.
Low, George D., Boston.
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Lowell, Miss Amy, Brookline.
Lowell, James A., Chestnut Hill.
Lowell, John, Newton.
Lowell, Miss Lucy, Boston.
Luke, Otis H., Brookline.
Lumb, William, Boston.
Lunt, William W., Hingham.
Lyman, George H., Wareham.
Lyman, Mrs. Theodore, Brookline.

Mabbett, George, Plymouth.
McCarty, Timothy, Providence, R. I.
Mackie, George, M. D., Attleboro.
McWilliam, George, Whitinsville.
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Mallett, E. B., Jr., Freeport, Me.
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Manning, Mrs. Lydia B., Reading.
Manning, Warren H., Brookline.
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Marshall, Frederick F., Everett.
Marston, Howard, Boston.
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Mason, Col. Frederick, Taunton.
Mathison, Fred R., Waltham.
Matthews, Nathan, Jr., Boston.
Melvin, George, South Framingham.
Melvin, James C., West Newton.
Meredith, J. Morris, Topsfield.
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Mitton, Edward J., Brookline.
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Montgomery, Alexander, Jr., Natick.
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Morse, John T., Jr., Boston.
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Morton, James H., Mattapan.
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Mudge, George A., Portsmouth, N. H.
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Mutch, John, Newtonville.

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Newman, John R., Winchester.
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Nickerson, Mrs. George A., Dedham.
Norton, Charles W., Allston.
Norton, Edward E., Boston.

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Olmstead, Frederick Law, Jr., Brookline.
Olmstead, John C., Brookline.
Orpet, Edward O., South Lancaster.

Page, Mrs. Henrietta, Boston.
Paige, Clifton H., Mattapan.
Parker, Charles W., Boston.
Parkman, Henry, Boston.
Parsons, John E., Lenox.
Patten, Marcellus A., Tewksbury.

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Paul, Alfred W., Dighton.
Peabody, Frank E., Boston.
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Peabody, John E., Salem.
Peabody, S. Endicott, Salem.
Peck, William G., Arlington.
Peirce, Miss Marion W., Topsfield.
Perry, George W., Malden.
Perry, Oliver Hazard, Lowell.
Pfaff, Col. Charles, South Framingham.
Phillips, John C., North Beverly.
Phillips, Mrs. John C., North Beverly.
Phillips, William, North Beverly.
Pickman, Dudley L., Boston.
Pickman, Mrs. Ellen R., Boston.
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Pierce, George Francis, Neponset.
Pierce, Wallace L., Boston.
Pierson, Frank R., Tarrytown, N. Y.
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Pope, Col. Albert A., Cohasset.
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Porter, James C., Wollaston.
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Pratt, Laban, Dorchester.
Pratt, Robert M., Boston.
Prendergast, J. M., Boston.
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Putnam, Joshua H., Newton Centre.

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Ripley, Ebed L., Hingham Centre.
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Sargent, Charles Sprague, Jr., Brookline.

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Sears, Miss Emily E., Boston.
Sears, Dr. Henry F., Boston.
Sears, Mrs. J. Montgomery, Boston.
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Sharp, Miss Helen, Boston.
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Shaw, Francis, Wayland.
Shaw, Mrs. Robert G., Wellesley.
Shofey, John L., Lynn.
Shuman, Hon. A., Roxbury.
Shurtleff, Josiah B., Jr., Revere.
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Siebrecht, H. A., New Rochelle, N. Y.
Simpkins, Miss Mabel, Yarmouth.
Skinner, Francis, Dedham.
Sleeper, Henry Davis, Boston.
Smiley, Daniel, Lake Mohonk, N. Y.
Smith, Archibald, Oxford, England.
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Smith, Charles S., Lincoln.
Smith, Edward N., San Francisco, Cal.
Smith, Thomas Page, Waltham.
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Tenney, C. H., Methuen.
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Thayer, Mrs. Bayard, South Lancaster.
Thayer, Eugene V. R., South Lancaster.
Thayer, Mrs. Eugene V. R., South Lancaster.
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Thayer, John E., South Lancaster.
Thayer, Mrs. John E., South Lancaster.
Thayer, Nathaniel, Lancaster.
Thayer, Mrs. Nathaniel, Lancaster.
Thayer, S. V. R., Boston.
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Thurlow, Thomas C., West Newbury.
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Vaughan, William Warren, Boston.
Vinal, Miss Mary L., Somerville.
Vining, R. William E., Hingham.

Wakefield, E. H., Cambridge.
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Waldo, C. Sidney, Jamaica Plain.
Wales, George O., Braintree.
Walsh, Michael H., Woods Hole.
Waltham, George C., Dorchester.
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Ward, John, Newton Centre.
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Watson, C. Herbert, Brookline.
Watson, Thomas A., East Braintree.
Watts, Isaac, Waverley.
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Webster, Hollis, Cambridge.
Webster, Laurence J., Holderness, N. H.
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Welch, Edward J., Dorchester.
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Wheeler, Frank, Concord.
Wheeler, James, Brookline.
Wheeler, Wilfrid, Concord.
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Wheelwright, Edmund M., Boston.
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White, George R., Boston.
White, Joseph H., Brookline.
Whitman, William, Brookline.
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Whitney, Ellerton P., Milton.
Whitney, Henry M., Cohasset.
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Whittier, William Benjamin, South Framingham.
Wigglesworth, George, Milton.
Wilbur, George B., Woods Hole.
Wilde, Mrs. Albion D., West Roxbury.
Wilder, Edward Baker, Dorchester.
Wilder, Henry A., Malden.
Willcutt, Levi L., Brookline.
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Williams, George Percy, Boston.
Williams, Henry Bigelow, Boston.
Williams, John Davis, Boston.
Williams, Mrs. J. Bertram, Cambridge.
Williams, Mrs. Moses, Brookline.
Williams, Philander, Taunton.
Wilson, Col. Henry W., Boston.
Wilson, William Power, Boston.
Winsor, Robert, Weston.
Wood, William K., West Newton.
Woodberry, Miss E. Gertrude, Cambridge.
Woodbury, John, Lynn.
Wright, George C., West Acton.
Wright, John G., Brookline.
Wyman, Oliver B., Shrewsbury.
Wyman, Windsor H., North Abington.

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Allen, Mrs. Sallie R., Wilmington.
Alles, William H., Watertown.
Anderson, George M., Milton.
Atkinson, Miss Caroline P., Brookline.
Ayres, Miss Helen F., Medford.

Bangs, Francis R., Boston.
Barker, John G., South Bend, Ind.
Barr, John, South Natick.
Bayley, S. King, Westwood.
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Bigelow, Mrs. Nancy J., Southborough.
Bird, John L., Dorchester.
Blackmur, Paul R., Quincy.
Blomberg, Carl, North Easton.
Bolton, Sabin, North Easton.
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Breed, Edward W., Clinton.
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Carpenter, Frank O., Boston.
Chandler, Alfred D., Brookline.
Chase, Joseph S., Malden.
Child, Stephen, Kendal Green.
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Clark, Arthur, East Weymouth.
Clark, John, Watertown.
Clark, John W., North Hadley.
Clark, Joseph, Manchester.
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Duffley, Daniel, Brookline.
Duncan, John W., West Roxbury.

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Fiske, Harry E., Wollaston.
Fitzgerald, Desmond, Brookline.
Forbes, William H., Jamaica Plain.
Francis, George E., M. D., Worcester.
Freeman, Miss Harriet E., Boston.
Fuld, Maurice, Boston.
Fuller, T. Otis, Needham.

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Garthley, James, Fairhaven.
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Grey, Robert Melrose, Belmont, Cuba.
Grey, Thomas J., Chelsea.

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Ham, Fernald E., Burlington.
Harrison, C. S., York, Nebraska.
Hartwell, Samuel, Lincoln.
Hatfield, T. D., Wellesley.
Hawes, Cyrus Alger, Brookline.
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Herff, B. van, New York, N. Y.
Heustis, Warren H., Belmont.
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Hill, J. Willard, Belmont.
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Houghton, George S., Reading.
Hovey, Charles L., Waban.
Howden, Thomas, Whitinsville.
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Hubbard, F. Tracy, Cambridge.
Huston, Miss Katharine W., Jamaica Plain.

Illenberger, Henry, Lake Geneva, Wisconsin.

Jack, Dr. Frederick L., Boston.
James, Robert Kent, Newton Centre.
Jameson, G. W., East Lexington.
Johnston, Robert, Lexington.

Keith, Mrs. Mary R., Washington, D. C.
Kelsey, Harlan P., Salem.
Kemp, William S., Brookline.
Kennard, Frederic H., Brookline.
Kimball, Richard D., Waban.
Knott, N. W. T., Waban.

Lancaster, Mrs. E. M., Roxbury.
Lawson, Joshua, Brookline.
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Loring, Mrs. Thacher, Brookline.
Loring, William C., Beverly.
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Low, Hon. Aaron, Hingham.
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McLaren, Anthony, Westwood.
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Manda, W. A., South Orange, N. J.
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Metcalf, Dr. Ben H., Winthrop.
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Moody, Abner J., Lexington.
Morgan, George M., Boston.
Morrison, William, Dedham.
Moseley, Frederick Strong, Newburyport.
Munson, Prof. W. M., Orono, Me.

Newton, John F., Roxbury.
Nicholson, William, Framingham.
Nicol, James, Quincy.
Nixon, J. Arthur, Taunton.
Norton, Michael H., Boston.
Norton, Patrick, Dorchester.

Oakes, F. L., Newton.

Parker, Walter S., Reading.
Pettigrew, John A., Jamaica Plain.
Pierce, Mrs. F. A., Brookline.
Pray, James Sturgis, Cambridge.
Pritchard, John, Madbury, N. H.
Purdie, George A., Ormond, Florida.

Rea, Charles H., Norwood.
Rea, Frederic J., Norwood.
Rich, Miss Ruth G., Dorchester.
Rich, William E. C., Roxbury.
Richards, Mrs. P. D., West Medford.
Robb, Peter B., Whitinsville.
Robinson, Walter A., Arlington.

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Ross, Henry Wilson, Newtonville.
Ross, Walter D., Worcester.

Sander, Charles, Brookline.
Saunders, Miss Mary T., Salem.
Scott, Augustus E., Lexington.
Scudder, Samuel H., Cambridge.
Searles, E. F., Methuen.
Seaver, Edwin P., Waban.
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Sharkey, John F., Cambridge.
Sharples, Stephen P., Cambridge.
Shaw, Hon. Edward P., Newburyport.
Stevens, Mrs. Mary L., Brookline.
Stuart, James, Brookline.
Swan, Charles W., M. D., Brookline.
Symmes, Samuel S., Winchester.

Tailby, Joseph, Wellesley.
Teele, William H., West Acton.
Thorpe, Joseph, Taunton.
Tingley, Mrs. Etta Fish, Greenwood.
Tyndale, Theodore H., Weymouth.

Vaughan, J. C., Chicago, Ill.

Ware, Horace E., Milton.
Warren, Samuel H., Weston.
Waugh, Prof. F. A., Amherst.
Welch, Patrick, Dorchester.
Westwood, Thomas H., Jamaica Plain.
Wheeler, Ezra H., Dorchester.
Wheeler, Henry A., Newtonville.
Wheelwright, George William, Jamaica Plain.
White, Miss Margaret, Cambridge.
Wilder, Miss Grace S., Dorchester.
Wilder, Miss Jemima R., Dorchester.
Wilkie, Edward A., Newtonville.
Winter, William C., Mansfield.
Wood, Elijah A., West Newton.
Wood, E. W., West Newton.

Young, E. Bentley, Boston.

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TRANSACTIONS

OF THE

MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1906

PART I

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND SIX

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society

FOR THE YEAR 1906

PART I

BOSTON
PUBLISHED BY THE SOCIETY
NINETEEN HUNDRED AND SIX

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MASSACHUSETTS HORTICULTURAL SOCIETY

1906

The Transactions of the Society are issued annually in two parts under the direction of the Committee on Lectures and Publications.

Communications relating to the objects of the Society, its publications, exhibitions, and membership, may be addressed to William P. Rich, Secretary, Horticultural Hall, No. 300 Massachusetts Avenue, Boston, Massachusetts.

J. WOODWARD MANNING, *Chairman*
JAMES H. BOWDITCH
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Committee on Lectures and Publications

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THE INAUGURAL MEETING, JANUARY 6, 1906.

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1906, PART I.

INAUGURAL MEETING.

The Inaugural Meeting of the Society for the year 1906 was held at Horticultural Hall, Boston, on Saturday, January 6, at twelve o'clock, noon.

In the absence of President Estabrook, Vice-President Hunnewell presided, and there were thirty members present.

Mr. Hunnewell said, in calling the meeting to order, that it was to be regretted that the condition of President Estabrook's health was such that it was not advisable for him to be with us during the colder months of the year.

He then called for the annual reports for the year 1905 which were presented as follows:

Report of the Board of Trustees.

Report of the Treasurer.

Report of the Secretary and Librarian.

Report of the Delegate to the State Board of Agriculture, William H. Spooner.

Report of the Finance Committee, Walter Hunnewell, chairman.

Report of the Committee on Lectures and Publications, J. Woodward Manning, Chairman.

Report of the Committee on Prizes and Exhibitions, J. K. M. L. Farquhar, Chairman.

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Report of the Committee on Plants and Flowers, Arthur H. Fewkes, Chairman.

Report of the Committee on Fruits, Wilfrid Wheeler, Chairman.

Report of the Committee on Vegetables, Warren W. Rawson, Chairman.

Report of the Committee on Gardens, Oakes Ames, Chairman.

Report of the Committee on School Gardens and Native Plants, Henry Saxton Adams, Chairman.

Report of the Inspector to the State Board of Agriculture, Francis H. Appleton.

The reports read were separately accepted and with a few which were omitted on account of lack of time or of which only a summary was given were referred to the Committee on Lectures and Publications.

Mr. Rawson, in connection with his report, read a tribute to the memory of Joshua C. Stone, for the past six years a member of the Committee on Vegetables. It was voted that the memorial be incorporated in the report of the Committee on Vegetables.

Adjourned.

WILLIAM P. RICH,
Secretary.

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HORTICULTURAL PAPERS AND DISCUSSIONS.

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ON THE IMPORTATION OF BENEFICIAL INSECTS FROM ONE COUNTRY TO ANOTHER.

BY L. O. HOWARD, Ph. D.

Delivered before the Society with stereopticon illustrations, January 13, 1906.

(Author's abstract.)

There are many large groups of insects which are parasitic in their habits and which destroy other insects. There are other large groups which are predatory in their habits and feed upon other insects. There is hardly an injurious insect which does not have its natural enemies in its own class. Sometimes the natural enemies will have the upper hand and the injurious species will be greatly reduced in numbers. Again the natural enemies will be reduced and the injurious species will abound. Wherever an injurious insect exists under normal conditions and in its original home, its natural enemies as a rule keep it in check and prevent its unlimited multiplication. But now with the large-scale expansion of agriculture and horticulture, and with the constantly increasing rapidity of traffic between countries, it has frequently happened that injurious insects have been introduced from one country to another without their natural enemies, and have consequently multiplied to an enormous degree. The United States has suffered especially from accidentally introduced insect pests mainly coming from Europe. About one-half of the injurious insects of first-class importance now existing in the United States were accidentally introduced from some foreign country.

A great interest in the handling of insects by means of their natural enemies has constantly been increasing in many parts of the world since the year 1888 when the strikingly successful search for the natural enemies of the fluted scale (*Icerya purchasi*) was begun under the auspices of the United States Department of Agriculture. But the idea was an old one. Dr. Asa Fitch, for-

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merly the State Entomologist of New York, was probably the first entomologist in America or elsewhere to take this question into serious consideration. In 1854, following a disastrous attack upon the wheat crop of the eastern United States by the wheat midge (*Diplosis tritici*), a species accidentally introduced from Europe during the early part of that century, Doctor Fitch made a careful study of the insect both in this country and from the European records, and was impressed with the fact that in Europe the insect in ordinary seasons did no damage, and that when occasionally it became so multiplied as to attract notice it was a transitory evil which subsided soon. He compared the insects taken from wheat in flower in France with those taken from wheat in flower in New York, and he found that in France the wheat midge consisted of but seven per cent of the insects thus taken while its parasites consisted of eighty-five per cent; whereas in New York the wheat midge formed fifty-nine per cent of the insects captured and there were no parasites of which he could be certain. He then came to the conclusion that it was a question of introducing the parasites into the United States, and he made an effort by correspondence with English entomologists, which however was a failure owing to the fact that he was unable to enlist the active coöperation of his correspondents.

Later William LeBaron, State Entomologist of Illinois, attempted to transport a parasite of the oyster-shell bark-louse of the apple from one part of the State of Illinois to another part of the same State where the parasites seemed to be lacking. Some slight success was reported, but the parasite subsequently proved to be one of general American distribution.

Another international attempt was made in 1873, when Planchon and Riley introduced an American predatory mite into France. The mite was an enemy of the grapevine Phylloxera, and became established in France, but produced no appreciable results in the way of checking the pest. In 1874 efforts were made to send certain parasites of plant-lice from England to New Zealand, but without recorded results of value. In 1880, in an article in the Annual Report of the Department of Agriculture for that year, the speaker showed that the transportation of scale-insect parasites is especially easy and especially desirable. In 1883 Prof. C. V. Riley imported a

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common European parasite (*Apanteles glomeratus*) of the imported cabbage worm from England into the United States. It has since established itself in this country and is a valuable aid in cabbage culture.

All previous experiments were completely overshadowed by the remarkable results of the importation of *Novius* (*Vedalia*) *cardinalis*, a ladybird, from Australia into California in 1889. For three years beginning with 1886, Professor Riley, then Entomologist of the Department of Agriculture, had recommended to the authorities in Washington that an effort be made to study the natural enemies of the scale in Australia and to introduce them into California, since he had determined by correspondence that Australia was the original home of the species and that on that continent the scale was not especially injurious. California fruit growers petitioned Congress to the same effect. Finally, during the winter of 1887–88, the Secretary of State, at the request of the Commissioner of Agriculture and of Professor Riley and of Mr. Frank McCoppin, of California, Commissioner-General to the Melbourne Exposition, appropriated funds for this purpose; and an assistant in the Division of Entomology, Mr. Albert Koebele, was sent to Australia on the Melbourne Exposition fund. He found the famous ladybird, *Vedalia cardinalis*, in North Adelaide, and made several sendings to southern California where the insects were cared for by another assistant in the Division of Entomology, U. S. Department of Agriculture, Mr. D. W. Coquillett. In less than a year, on Californian soil, the ladybird had multiplied so extensively as to practically destroy the fluted scale and to reduce it to a condition where it was no longer a factor in the cultivation of oranges and lemons. The same insect was later introduced from California into New Zealand and into Portugal and into Egypt, with similar striking results. In 1893 Mr. Koebele resigned from the Department of Agriculture and was employed by the State Board of Horticulture of California to proceed again to Australia and other points in a general search for beneficial insects. He made extensive trips and imported a number of beneficial insects into California, one of which, a ladybird known as *Rhizobius ventralis*, proved to be of value in reducing the numbers of the black scale in such portions of California as were near the

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sea, notably in the large olive plantations owned by Mr. Ellwood Cooper, of Santa Barbara. Hundreds of thousands of the beetles were distributed in California, and in some localities kept the black scale in check. Away from the moist coast regions, however, it proved to be less effective.

Subsequently the speaker introduced from Italy a curious little Chalcidid parasite known as *Scutellista cyanea*, and endeavored to acclimatize the species in Louisiana upon the wax scale. The parasites, however, died out. Later other specimens of the same parasite were sent to the speaker from South Africa by Mr. C. P. Lounsbury with the statement that it is there a parasite of the black scale. With Mr. Lounsbury's help, South African specimens were introduced into California and there colonized by Mr. E. M. Ehrhorn, Horticultural Inspector for Santa Barbara County, and Mr. Alexander Craw, Quarantine Officer of the State Board of Horticulture. The first successful introduction occurred in 1900, and during the following years it was constantly distributed in California and by the close of 1903 many orchards had been practically freed from the black scale and the good work still continues.

After Mr. Koebele's second oriental trip he resigned his position in California and was employed by the newly established Hawaiian Republic for the purpose of traveling and collecting beneficial insects to be introduced into Hawaii. He has since continued his work under that government and has imported many insects some of which are said to have accomplished good results. For example, a ladybird known as *Coccinella repanda* was brought by him from Australia and China and is said to have exterminated plant-lice on sugar cane and other crops. Another ladybird, *Cryptolaemus montrouzieri*, is said to have destroyed the scale insects on coffee plants and other trees; while a Chalcidid parasite known as *Chalcis obscurata*, introduced from China and Japan, is reported to have multiplied enormously at the expense of an injurious caterpillar which had attacked banana and palm trees.

The San José scale, while attacked by various internal parasites proved in the eastern United States to thrive in spite of their presence, and in 1901 and 1902 Mr. C. L. Marlatt, Assistant Chief of the Division of Entomology of the Department of Agri-

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culture, made a trip of exploration in oriental countries, lasting more than a year. He found the original home of the San José scale to be North China, where its original host plant is a little haw apple which grows wild over the hills. He found there everywhere a ladybird known as *Chilocorus similis*, feeding in all stages upon the San José scale. Specimens of these were shipped to Washington and bred freely, afterwards being sent in colonies to various parts of the United States. The colonies at Washington were practically exterminated the second year by an American parasite of ladybird beetles, and among the colonies sent out those in the North did not succeed in establishing themselves. In the South, however, the species increased and is still maintaining itself although the universal use of the lime, sulphur, and salt washes has prevented it from becoming an important feature in the insect fauna of that region.

After Mr. Koebele left California to go to Hawaii, Mr. George Compere was sent by the State Board of Horticulture of California to make investigations and to send to California such beneficial insects as he deemed of probable value. Later he entered the employment of the government of Western Australia, and has since been traveling in various parts of the world, partly in the interest of Western Australia and partly in the interest of the State of California. Several species have been discovered by him and sent to California, all of them being desirable additions to the California fauna, although the last reports from the Commissioner of Horticulture do not indicate that any of them have as yet done work of any great value. Mr. Compere's latest importation into California is a European Ichneumon fly known as *Calliephialtes messor*, a species which occurs commonly throughout Europe and which has been recorded as an European enemy of the wax moth (*Galleria mellonella*). This parasite was found in Spain feeding upon the codling moth larvae, and he imported specimens into California. It is said to have already established itself there and to promise good results. Mr. Compere has also imported several beneficial insects into Western Australia, the one which he thinks will accomplish the best results being a parasite of the so-called fruit fly (*Ceratitis capitata*) which he found in Brazil.

The speaker described his visit of the previous summer to Europe to originate an extensive effort to import the European parasites

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of the gypsy moth and the brown-tail moth into Massachusetts and to acclimatize them in that State. He showed that both of these insects are well known in Europe and are by no means as injurious on that continent as they prove to be in Massachusetts. They are known to have many natural enemies and parasites in Europe. Fifty-two species of parasites have been recorded for the gypsy moth by European entomologists, and nearly the same number for the brown-tail moth. The speaker visited Europe during June and July, 1905, and secured the sending from Italy, Austria, parts of Germany and Switzerland of large numbers of parasitized full-grown larvae and pupae of the gypsy moth to Boston. From these specimens were reared six distinct species of parasites, and of these about 500 puparia of *Tachina larvarum*, one of the largest and most important of the European parasites, were secured and kept for overwintering in an apparently healthy condition. Numerous specimens of a smaller Tachina fly were also secured. The other parasites from these particular sendings were unimportant. Arrangements were made in Europe with a large number of experienced collectors and with the official entomologists of different countries, so that the work of sending parasitized specimens over to America will be continued systematically for two years to come. The work of 1905 has shown that it is an easy matter to import these parasites in living condition, and, with the abundance of food which they will find in Massachusetts, there can be little doubt that they will establish themselves and will rapidly increase, eventually bringing about the same condition of natural equilibrium that exists in Europe.

The assistance and coöperation of official European entomologists were readily gained, both on account of their general interest in such matters and of the fact that the United States can be of use to their countries in a similar way. Thus already, the speaker stated, he had shipped sendings of *Diaspis pentagona* and *Mytilaspis citricola* to official entomologists in Italy and France in the hope that American parasites of these species will issue on European soil.*

*During the winter of 1905–06, 116,000 nests of the brown-tail moth were brought over from many different localities in Europe. These were installed in the laboratory at Saugus, and at the date of writing over 40,000 primary parasites have issued and are being colonized in the vicinity of Boston. L. O. H. May 31, 1906.

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It will appear from what has been said that some excellent results have been obtained in this introduction work. Very many experiments have resulted negatively, and many of the insects imported have not proved to be of great success, but every natural enemy of an injurious species, once established, is more or less of a help in the warfare against the pest. When a great success is achieved like that of the introduction of the Australian ladybird or the African Scutellista, the saving which results far more than compensates for the expenses of long-continued travel and investigation.

Finally, it must be stated that in experimental work of this kind, when conducted by the right men, there is no danger. The historic cases of the introduction of the English sparrow into the United States, of the East Indian mongoos into the West Indies, and of the European rabbit into Australia, are often mentioned in connection with these importations of beneficial insects and as warnings. But parasitic insects are always parasitic upon other insects and nearly always upon injurious species. Predatory insects are always predatory upon other insects. There is not the slightest danger that any of these importations will become destructive to agriculture except in the indirect way in which a secondary parasite, by destroying a primary parasite, may thus liberate an injurious insect from attack. Persons engaged in this work, therefore, should be able readily to distinguish between primary parasites and hyperparasites.

Referring in conclusion to the importation of the natural enemies of the gypsy moth and brown-tail moth, the speaker stated that the prospects on the whole are favorable for eventual relief. He stated, however, that this relief will not be speedy, and property holders in the infested regions must not relax their efforts to keep the injurious insects down. Observations during the past years have shown that the complete defoliation which results from the attacks of the insects will kill certain varieties of trees in two seasons, and if work against the insects is remitted while waiting for the parasites to develop, the consequent loss will be very great.

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Discussion.

At the conclusion of Dr. Howard's address the Chairman stated that opportunity was offered for any questions on the subject.

James H. Bowditch said that he would like to ask the Lecturer if he would not advise the acceptance, as a matter of additional precaution, of the offer of Hon. Ellwood Cooper of California, who guarantees to introduce effective parasites for the sum of $25.000, to be paid only when the work is a proven success.

Dr. Howard replied that he had a good opinion of Mr. Cooper and that the work in California in the line of introduction of parasitic insects had in some instances been successful, but if the work in Massachusetts should prove a success how should we know when both were working in the same field, whether his parasites or those of the U. S. Department of Agriculture were producing the better results? And, therefore, how would the State know whether to pay Mr. Cooper the remuneration mentioned?

Mr. Bowditch replied that it did not make any difference to us, the sufferers, whose parasites they were, provided we got rid of the pests. Mr. Cooper proposes to employ George Compere, who has just been favorably spoken of by Dr. Howard, to work with him. When a man is critically ill a consultation of doctors is both proper and desirable and that is the condition in which we now find ourselves in relation to this great trouble that has come upon our woodlands and orchards. He said he should be sorry and disappointed if Mr. Cooper refused to work with Dr. Howard.

Mr. Bowditch stated that he had consulted with the Attorney General of the State to learn if it were possible to have the $25,000 set aside for this purpose out of the remaining unexpended balance of the general state appropriation of $300,000, and was informed that the question should properly come from Supt. Kirkland, who had promised to make the inquiry. He had also received a letter from W. D. Sohier, Esq., who was of the opinion that the better way would be to engage Mr. Cooper by private subscription, and to this Mr. Bowditch agreed. There was no doubt that the amount required could be raised easily and he could see no objection to the business men of Massachusetts taking up the

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matter and employing Mr. Cooper to perform this work. There had been received already an offer from an Ex-President of this Society, Mr. Nathaniel T. Kidder, to be one of five to contribute $5000 each under proper conditions, for this purpose. He said that he certainly hoped that Dr. Howard and Mr. Cooper would join forces, and that we ought not to neglect any plan that seems to offer additional prospect of permanent relief.

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GARDEN ACCESSORIES: THEIR POSSIBILITIES IN COUNTRY AND CITY GARDENS.

BY LORING UNDERWOOD, BOSTON.

Delivered before the Society with stereopticon illustrations, January 20, 1906.

It gives me a pleasure to meet you today for the purpose of discussing with you some features of ornamental gardening, such as fountains, pools, pergolas, arbors, trellises, bowers, terraces, walls, balustrades, summer-houses or garden-houses, benches, urns, tables, and figures.

You will pardon me if I take advantage of the chance the stereopticon offers me to monopolize most of the discussion.

While treating with garden accessories I wish to point out the opportunity for their use in small city-yard gardens; such little formal gardens as might easily be made out of the typical unsightly back-yard; but I will first speak of these features in connection with the ornamentation of larger gardens.

When I was asked by the lecture committee to give a talk on this subject of garden accessories, or garden ornaments, or garden furniture, as you may choose to call it, I thought it would be more interesting and more instructive to treat the subject in a general way rather than to talk about each particular style of garden ornament by itself; for the reason that the successful use of these features in a garden or on the grounds of a country place must depend not only upon the design of the accessories themselves but upon the *positions* they occupy. The most beautiful arbor, pergola, summer-house, or fountain may look ugly if it is not appropriately placed so as to appear in keeping with its surroundings. The introduction of such garden accessories as these together with terraces, pools, walls, sundials, tables, and the like has been made possible by the ever increasing use of our gardens and home grounds as out-of-door living rooms.

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The great wave of "garden magic" that is sweeping over us and is being so enthusiastically encouraged by many magazines and writers of today is awakening in us the fact that we ought to make more use of our gardens apart from the pleasure of gathering and caring for flowers; and we ought to make them look attractive by the introduction of features that will give charm when there are no flowers in bloom, as is always the case in this climate six or seven months out of the year. There is more to gardening than the mere raising of flowers. If any person does not think so he had much better raise his flowers as he would vegetables, in simple beds by themselves, rather than make a feeble attempt to dress up his grounds with fantastically arranged flower beds. And this same principle holds true in regard to the employment of garden accessories. Better make no attempt to use them at all, if it cannot be done more artistically than we sometimes see in some country places which have been absolutely ruined by spotting them with hideous statues and flimsy iron fountains and the like; but such cases are comparatively rare.

One of the most useful of garden accessories and one that looks appropriate in almost any garden is a summer-house, or garden-house, or exedra, as it is sometimes called in Italian gardens. No matter whether your garden is large or small, formal or naturalistic, there is generally a cozy spot where a summer-house would fit nicely. The intense heat of our summer sun in New England almost necessitates such a shady retreat where one may sit and enjoy the beauty of the surroundings. I dare say all of you can recall many gardens beautiful enough in themselves but decidedly unliveable because of this hot sun.

The summer-house need not be a pretentious affair unless the grounds around it are rigidly formal. Some of the most charming ones are made of red cedar with the bark left on, or of rough oak, roofed with stout beams and thatched with straw or pine needles. I have in mind two such simple structures, illustrations of which I will now show you. This one I had the interesting experience of constructing unaided on my place in Belmont, and I think I learned more about carpentering during the time it was being erected than I could have in years of study in theory. Surely if bruised hands and hammered thumbs count for anything I accom-

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plished great things. This summer-house is unique because it is thatched with pine needles. This thatch is a simple one to make and was suggested to me by the falling of the dead needles from the pine trees under which the summer-house is built. The roof was first covered with heavy tarred roofing paper and upon this was spread a thick coating of coal-tar. While the tar was still warm, brown pine needles were spread on by the bushel basket full and the whole was raked smooth until the needles lay quite flat. The house is absolutely rain-proof, and the yearly supply of dead needles from the trees overhead makes up for the loss of those that decay in the process of weathering. Of course it is an ideal structure for vines and climbers, and these help its appearance by giving it an air of repose and dignity. When we consider the many uses that a summer-house may afford we wonder that there are not more of them.

Other accessories that give a shady retreat in a garden are pergolas, arbors, trellises, and bowers. These might all be classed as cousins in the garden family, or even closer relations, so much do they resemble one another, both in form and purpose, namely: the covering of pathways with vines and greenery, letting in just enough light and air to produce comfort, and to make vistas through the glimmering light and shade. Flowering vines never appear to better advantage than when trained on the posts and cross-beams of a pergola, making an airy tunnel of greenery and bright color. But the raising of vines and climbers is not alone excuse enough for building a pergola. Such a structure should lead to something, to a garden seat or a summer-house, or it should connect one part of a garden with another. The pergola may be an elaborate affair of stone columns supporting heavy oak beams, interlaced overhead like those seen in Italy, or it may be made entirely of wood with simple upright posts and cross-beams with the bark left on. Many of the attractive arbors of lattice work seen in some of our old Colonial gardens are modified pergolas, and they are often used for the purpose of raising grapes.

Another feature that is not introduced enough in our gardens and one that always produces a magical effect when properly used, is water as a fountain, or in a simple pool where one may raise water plants. The very sound and appearance of water in a gar-

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den produces a cooling effect, and aside from the enjoyment derived from the musical splashing of a little fountain, the reflection of sky and flowers will give a charm to a garden never to be forgotten.

The only objections that I have ever heard to this kind of garden accessory are that it is expensive to supply the water, and that mosquitoes will breed in these miniature ponds. As for the cost of supplying water, I know this to be very small even in the City of Boston, for I had a fountain and pool constructed for the Garden Studio last summer and the charge is but ten dollars a year for a continuous supply through a three-eighth inch jet. One need not fear of mosquitoes breeding if there are a few fish in the water, for it is well known that mosquito larvae will be eaten by them as fast as the mosquitoes' eggs are hatched. The most serviceable material for building fountains and water basins is composition stone, made of cement, and it produces a simple and artistic effect that is vastly different from the hideous appearance of most of the iron work of this nature. I venture to say that many of our gardens have not enough of the air of seclusion which is generally so necessary for the successful introduction of fountains or pools. It is the restful kind of garden surrounded by hedges or trees that invites this sort of accessory.

The garden seat is an accessory that should be welcome in any garden. How transient many gardens seem because of the absence of a convenient bench that would invite one to take time enough to enjoy the surroundings. There is hardly a limit to the number of designs suitable for garden seats and benches, and yet how homely is the stereotype affair we so often see in parks and public gardens. Now that composition stone has become so useful for making garden ornaments, there is not much difficulty in finding graceful seats and benches that will last forever. Good ones can be bought for about twenty dollars. Some of the more elaborate seats are covered to keep out the sunlight, and to give a chance for climbers to grow upon them. Many of these are quite large so that they have the appearance of small summer-houses.

The much discussed Italian garden is dependent upon such accessories as walls and terraces and steps, but this form of gardening is often misunderstood by people who try to fit it into locations where it is absolutely uncalled for; and the term Italian garden

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is applied by the unthinking to any kind of garden that has in the least degree a formal layout. Of course it is on the hillside that this sort of garden is built in Italy. A flat situation calls for a different treatment, and, although walls are often used with success in level gardens, they are walls that are quite different from the heavy retaining-wall of the Italian garden; they are used more as one would use a hedge. Walls and terraces are to a garden what the walls of a house are to its interior. Their excuse for being should be for support or for giving an air of privacy and protection. I think you will agree that such gardens have a charm quite distinct from all others.

Other accessories that serve a useful purpose and are much admired for their ornamental qualities are well-curbs, urns and pots, tables, sundials, gazing-globes, and figures. I have seen many little gardens where one of these decorative pieces served as a keynote to the entire situation, around which paths and flower beds were arranged in such a manner as to make an agreeable picture of the whole. At the intersection of paths, at the end of a walk or pergola, or in front of a garden-house are some of the situations where these pieces may be placed so as to give one the impression that they *must* be where they are or else the garden would lose much of its charm. The relation that these smaller garden ornaments bear to their surroundings must be as carefully studied as the placing of the larger accessories.

I should like to take up in detail each of these smaller accessories but the time allotted for this lecture is not sufficient. However, I want to call your attention to the great possibilities in this field of garden accessories as applied to the city back-yards. These yards, as they exist for the most part in the homes of our well-to-do people, are a disgrace to the community. Neat, some of them may be, but what ugliness is to be seen when one looks out of a dining-room window and sees an assortment of clothes and clothes-lines, ash-barrels, garbage-boxes and the like, all up and down the line.

To convince you that these yards can be made beautiful, and at the same time practicable and serviceable, let us look at some illustrations of two Boston yards that have been successfully remodeled.

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One is a back yard on Beacon Street, the accessory features of which are almost complete, the other is The Garden Studio that I had the interesting experience of installing last summer. This yard is dependent upon its accessories for its attractiveness. For there is but little sunlight to support vines and other plants except the shade-enduring varieties. Because these city yard-gardens must be made attractive during fall, winter, and spring, when there is little vegetation, it is necessary to treat them in this semi-architectural fashion by the introduction of such garden accessories as I have mentioned.

Let us hope that the ever increasing regard for our gardens as places that should give comfort and beauty combined will lead to a fuller appreciation of the proper use of garden accessories.

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GENERAL DISCUSSION ON THE BEST NEW ENGLAND FRUITS.

OPENED BY E. W. WOOD, WEST NEWTON, MASS.

Saturday, January 27, 1906.

A discussion on the subject of the best varieties of fruit adapted for general cultivation in New England was held at Horticultural Hall today. James H. Bowditch of the Committee on Lectures presided and introduced as the first speaker E. W. Wood of West Newton.

Mr. Wood said that the subject today, that of the best varieties of fruits for cultivation in New England, was an important one, especially for those intending to begin fruit growing in this section of the country. It is essential to know what varieties do well here and are the most profitable to grow, for it costs no more to grow good fruits than those of an inferior quality.

Years ago this market was flooded with innumerable varieties of pears, especially, of French and German origin, and as the pear is a long-lived tree, many of the products of these old trees are even at this day brought in for identification and are scarcely known.

The apple is our most important production in the fruit line, and of the thousands of varieties in existence the following list can be recommended: Astrachan, Williams, Gravenstein, Hubbardston, McIntosh, Baldwin, Rhode Island Greening, and Roxbury Russet. A small selection from the great number in general cultivation but all of them will be found valuable.

The pear is undoubtedly the next important fruit in New England and can be grown more successfully and of better quality in the immediate vicinity of Boston than in any other part of the country, and we are not ashamed to compare ours with those of other localities.

In years past at the exhibitions of this Society Marshall P.

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Wilder showed 317 named varieties of pears and Charles M. Hovey, 260. Col. Wilder was asked how many of these he would advise growing. He replied by holding up his two hands, upon the fingers of which could be enumerated the most desirable varieties.

Mr. Wood recommended the following list of pears: Bartlett, Bosc, Sheldon, Seckel, Dana's Hovey, and Anjou.

The Bartlett is so well known that it hardly needs mention and the Bosc is one of the finest. The Sheldon is also well known and a good market variety. The Seckel is the standard of quality with which all others are compared. The Dana's Hovey, a seedling from the Seckel, is a favorite and one of the best selling sorts on the market. It is sometimes called the Thanksgiving pear from the season in which it is at its best. The Anjou is considered the best winter pear although it has lately shown a disposition to scab and some are grafting it over to other varieties; but this trouble can doubtless be obviated by proper spraying.

Peaches, as you all know, are uncertain and we have to take chances with this crop. It is a good plan to plant a few each year, thus replacing those that succumb to disease or are killed by the winter weather. However, in Connecticut they are doing more than we are and are making it reasonably successful.

Among the varieties recommended are the Crawford's Early, Crosby, Foster, Oldmixon, Carman, and Elberta. In many seasons the Crosby bears a crop when others fail. The Elberta, a new variety introduced within ten years, is a handsome peach, resembling the Crawford.

Cherries should receive more attention than they have had. The best sorts are the Black Tartarian, Downer's Late, and Gov. Wood.

Interest in plums has increased during the last few years with the introduction of several varieties from Japan, among which the Abundance and Burbank are noteworthy. Of our own kinds the Bradshaw, Washington, and Lombard will prove more satisfactory than others.

In grapes the list of desirable varieties is a long one but the following are recommended: Worden, Concord, and Moore's Early, for purple varieties; Niagara and Pocklington for white;

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and the Brighton for red. The Brighton has foreign blood in it and is a specially good grape.

Perhaps no fruit produces a greater quantity in the space required than does the strawberry, and it is profitable in a larger area if the home market is catered to. The local trade should be supplied by home growers instead of having to depend on shipments from the city commission merchants.

The Marshall is the noblest berry we have ever had; it is of good form and color and of large size. It is claimed that it is not as productive as some other kinds, but this is owing to its being grown too thick; the matted leaves preventing the ripening of the fruit. The Clyde is not to be compared with the Marshall in quality. Other good varieties are the Brandywine, Bubach, Sample, and Minute Man. The Minute Man is one of the more recently introduced varieties and is a handsome berry, of medium size, bright colored and attractive.

In currants the two best kinds are the Versaillaise and Fay's.

Blackberries and raspberries are too uncertain to grow in market quantities and we cannot compete with the growers further south. The Dorchester and Kittatinny prove satisfactory for domestic use and for commercial purposes.

James H. Bowditch called attention to the work of Luther Burbank in California and to his very successful efforts in the hybridization and improvement of various kinds of fruit.

John L. Bird spoke highly of the Comice pear which he considered the best pear in his orchard and will keep until January. He said the Comice and the Josephine are two extra quality pears.

Mr. Wood remarked that the Comice is not productive enough to be admitted into his list.

Lysander S. Richards called attention to the Sheldon pear which he said was showing signs of degeneration from some cause which he could not understand, and that it cracked badly with him. He endorsed what had been said of the Marshall strawberry and that it was without doubt the best variety in the market. Seven-eighths of the berries shipped out of Scituate were Marshalls.

Edward B. Wilder said that the reason of the raspberry crop being so uncertain was that the canes were not protected in the

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winter. He always laid down his canes and covered them with a little earth and was always sure of a good crop.

Mr. Wood remarked that no one around here now grows raspberries to any extent; it involved too much extra labor and care.

Samuel H. Warren said that raspberries were grown in his town (Weston) to a considerable extent. He formerly grew the Cuthbert, but had experienced a good deal of trouble from knot in the roots, and he now grew a newer variety, the Marlboro. Raspberries were not very hardy; he formerly kept a bed for ten years, now he has to renew it about every four or five years. Speaking of the Dorchester blackberry he said that he did not consider it very hardy and, unless it was laid down and covered with earth, it was a very uncertain crop. He preferred the Snyder and if he were going to set out blackberries today it would be the Snyder variety, although it was not equal in quality to the Dorchester.

He said that the success of the Clyde strawberry depended wholly upon the season and that it was the worst of all kinds in wet weather, for then it would rot badly. The Senator Dunlap, a variety of recent introduction, though not a large berry, was of extra quality.

John Ward stated that the cultivation of strawberries had been his occupation for the past sixty years and he gave some of the results of his observations.

The old way was to set out the plants in the spring and leave them to grow in a matted bed, taking care not to have them cover the ground too closely. In the last few years he had seen the result of setting out plants in August and September, instead of in the spring, and he had been induced, some five years ago, to try that course. Taking the plants from the alleys of an old bed, they grew slowly and made but poor plants to stand the winter and bear fruit the next season. To have good, thrifty growth they must be young, vigorous plants taken from plants set the fall before, and if the ground becomes dry after setting water must be liberally applied.

Three years ago he set out a lot of plants about the middle of August; the weather was favorable and they made a good growth before winter. The land was fertilized with stable manure about the same as for other crops, and in November they were covered

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with coarse, strawy stable manure, put on early enough to have the rains carry the strength underground before the ground was frozen. There were planted three varieties, Marshall, Sample, and Clyde. They were set in rows one foot apart and ten inches apart in the row, with an alley of two feet between every two rows. The lot of land was 132 by 12 feet or 1584 square feet. On this lot were picked 364 quarts, being at the rate of 10,000 baskets to the acre. He exhibited the products of this lot at the Society's exhibition, taking the Special Lyman Prize for the best four quarts of Marshall, $15.00; also the first prizes for two quarts of Marshall, Sample, and Clyde, $3.00 each. Last year they did not do as well, not having so good plants, and a dry season, but they promise well for the coming year.

Rev. Charles L. Hutchins said that he always envied those who had information to impart and he had come to this meeting with the object of asking questions and of securing some of this information. He was practically interested in fruit growing.

Although irrelevant to this discussion he desired to call attention at this time to an association recently organized by those interested in the culture of asparagus. It is called the Massachusetts Asparagus Growers' Association, and one of its objects is to investigate the asparagus rust for which no remedy has as yet been found. The association is in close touch with the Hatch Experiment Station at Amherst and also with the Department of Agriculture at Washington, and it hopes to be of service to asparagus growers who are invited to join the association.

Another point that he wished to inquire about was as to the desirability of setting out dwarf trees as fillers in a young orchard of standards. Prof. Brooks of Amherst advises the setting out of dwarf trees and Prof Waugh recommends them for planting between the standards. He would like to know if Mr. Wood or any others present had ever had experience in this matter.

Mr. Wood replied that Prof. Waugh is the only person he knows of who is cultivating dwarf fruit trees to any extent. If all you want is large fruit you can get it on small trees, but it should be remembered that the dwarf pear is grown on the quince root and it will not do well on dry soil. The quince stock thrives best in heavy, moist land and, therefore, is not to be recommended for the average orchard.

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Aaron Low stated in reply to Mr. Hutchins' question that he would recommend peaches and plums for fillers in an apple orchard rather than dwarf trees. In the matter of strawberry culture careful consideration of location is required. Some varieties will not do well unless in the proper conditions. Be sure to inquire first what variety will succeed best in your location and on your soil. The variety that grows well on one man's farm might not on another on account of the differences in the soil and other conditions. He said that the Wilson's Albany was a good cropper but a poor berry, being of a sour flavor, and has been largely superseded by such varieties as Sample and Clyde which are better adapted to all localities.

Mr. Warren disagreed with Mr. Low as to the quality of the Wilson's Albany strawberry. He said if it was allowed to stand until ripe it is a most excellent fruit. Its poor reputation had been acquired by picking it for market before it was sufficiently matured. The strawberry is a hardy plant and he believed in setting out the plants in the fall and thereby gaining the advantage of two months' growth, for they start to grow before you think they are ready for it. Covering them with leaves is a good thing for winter protection if removed early enough in the following season.

In regard to the cracking of pears he said that a few years ago the pears in his orchard cracked badly, but a good dressing of hard-wood ashes had overcome the trouble.

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GENERAL DISCUSSION ON VEGETABLE GROWING.

OPENED BY WARREN W. RAWSON, ARLINGTON, MASS.

Saturday, February 3, 1906.

A meeting for the consideration of the subject of vegetable growing was held at Horticultural Hall today. Hon. Warren W. Rawson, Chairman of the Committee on Vegetables, opened the discussion and spoke as follows:

The necessary requirements for growing good vegetables are proper soil, good seed, thorough cultivation, and careful attention.

The soil for most vegetables should be of a sandy nature with a good subsoil for drainage. A soil of this nature is especially adapted to such crops as lettuce, spinach, radishes, cucumbers, beets, asparagus, rhubarb, parsnips, peas, beans, celery, tomatoes, and early cabbages. A heavier soil with a clay subsoil is best for such crops as onions, late cabbage, early celery, and summer lettuce. The light or sandy soil can be cultivated much earlier than the heavy soils and will produce two or three crops each season, while the heavy soil in most cases produces only one.

The cultivation of the soil is a very important item to the crop as well as the amount and kind of fertilizer applied. The better the soil is prepared the earlier and better the crop. It should never be worked when wet and not too early in the spring before the frost is out because it is then cold and wet. In this locality it often happens that land is prepared in the month of March and then such crops as spinach, lettuce, and radishes are sown. But it is better not to plant the above until April for then the ground seldom freezes at night thus resulting in a better germination of the seed. It will also grow better then than when it is planted too soon.

On the heavier soils very little is done until the last of April or the first of May. If the land is twice plowed and well harrowed

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it should be in proper condition for any crop. I think all land should be plowed in the fall.

The selection of the seed is very important and requires considerable care and attention. Seed is different from any other article to purchase. Each farmer or market gardener should lay out a plan of his place so that he will know just how much territory he will plant to certain crops. Then he can tell how much seed it will take of the different kinds and can make out his order to the seedsman for the necessary quantity, estimating the quantity by the amount of land to be planted. There are many different ways of purchasing seeds; some will shop around, buying one kind in one store and another kind in another place, one kind at one time and another kind at another time. Some pay cash and some get trusted until the seed is sown and the crop matured. In the latter case it not infrequently happens that the purchaser will go to the seedsman in the fall and find fault with some kind of seed that did not do well in order to get some reduction on the bill, whereas in reality the blame should be placed on climatic conditions or the method of planting. There are also quite a number of people who buy at the lowest price, thinking that what they save on their seed bill is so much off on the expense account. The seedsmen know these customers and know how to treat them. They will always have trouble with their seeds for the reasons I have mentioned. But there are those, and they are nearly always the prosperous ones, who make out their order, take it to the seedsman in whom they have confidence, and tell him that they want the best he has regardless of price. Such men never have any trouble with their seeds and the seedsman does all he can for them. With these men the seeds are always satisfactory and also the price.

The cultivation and care of the crop is the main thing after the planting is done and should be attended with great care, because on this depends in many cases the success or failure of the crop.

The amount of fertilizer necessary for each crop depends upon the crop to be grown and the condition of the soil. Here we have to take into account the preceding crop and how the soil was treated for that crop. An application of twenty cords of fine stable manure per acre is sufficient for almost any crop grown. Stable manure has been proved to be a complete manure, but if a second crop is

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to be grown on the same land an additional ton of some special fertilizer suitable to that crop is often necessary.

Irrigation is a very important factor in the growing of crops, especially in the maturing of them. All vegetables are composed of from seventy to ninety per cent of water and there is a time in the growth of every crop when it requires a large amount of moisture; that is when it is maturing and at that time irrigation is very beneficial; especially is this true in a dry season.

Within the past twenty years a good deal of attention has been given to the growing of vegetables in greenhouses under glass. It has been found that crops can be grown to greater perfection under glass than in the field and by the use of glass many crops can be grown for market all the year round, practically making them continuous. These crops which are grown continuously at a profit are lettuce, cucumbers, radishes, parsley, and tomatoes. All of these can be grown to greater perfection in houses than outside. In fact all crops grown in houses can be grown easier and better than in the field.

But, after all, the growing of all crops depends more on the man than anything else. Providing all the other requirements are to be had, his experience and knowledge of the soil, the crops adapted to it, and the proper rotation of crops are important factors in the growth and maturing of every crop.

By far the most important fact to consider is whether the crop pays for the growing. This can only be ascertained by keeping careful account of every crop grown. By doing this you can tell whether this or that particular crop is profitable and if it is not it would be better to discard it and grow only those that do pay, and those with which you have the best success. This success may result from your knowledge of growing the crop or because the soil is particularly adapted to that crop. At the present time those who are most successful confine themselves to growing a few of the most stable and those which are in demand.

In the course of the discussion that followed Mr. Rawson stated, in reply to a question concerning the use of electricity as an aid to vegetable growing, that he had found the arc electric light beneficial in the growing of lettuce under glass and that he was now

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experimenting with electricity directly applied to the soil. This method promises to be of still greater benefit. He said if any doubted the stimulating effect of electricity on the growing of crops under glass he would be glad to have them see two of his lettuce houses, one of which is arranged with electrical appliances and the other without them. The difference in the result is very marked in favor of the electrically treated crop.

He was still in the experimental stage of this subject and he hoped in the course of a year to report the conclusions reached in more detail.

Referring to the matter of the sterilization of the soil he said that after the experience of eight years he had found it most successful and satisfactory; in fact it was the best thing he ever did in the greenhouse line and the most profitable. Electricity and sterilization were two entirely different things and one would not do the work of the other.

Mrs. E. M. Gill remarked that forty years ago she knew of a woman who made a practice of putting earth in an oven before potting her plants.

In answer to another question Mr. Rawson said that the trouble with most farms was the lack of proper treatment. The soil was not worked enough and he advised one plowing in the fall followed by two more in the spring. The soil should be thoroughly worked over to produce good crops.

In reply to further inquiries he stated that in sandy soil manure would last only a single year; that the cause of lettuce not heading up was too much heat and it should be planted in the coolest part of the garden, even if a little shaded; that tomatoes were not productive enough for a profitable greenhouse crop; and that manure should not be put in the ground in the fall, except for a crop of rhubard.

He stated also that in growing cucumbers in the greenhouse bees were necessary for fertilizing the blossoms and that he bought regularly fifty swarms a season.

There was as yet a limited sale for endive and some other foreign vegetables but they will be grown more extensively in the future.

A vote of thanks was tendered Mr. Rawson for his exceedingly interesting contributions to the meeting.

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WORN-OUT FARMS AND THEIR POSSIBILITIES.

BY PROF. W. M. MUNSON, UNIVERSITY OF MAINE.

Delivered before the Society, February 10, 1906.

Systematic efforts are being made in several of the New England states to dispose of the "abandoned" or "worn-out" farms, or to reclaim them. It seems particularly fitting, therefore, that this society, which for three-fourths of a century has stood for the best that there is in New England agriculture, should consider for a little time the reason for the existence of these abandoned holdings, the ways in which they may best be reclaimed, and some of the possibilities of the future.

Reasons for Abandoned Farms.

There is in the American people an inherent spirit of unrest. As a people we are never "settled." In the United States, as one impatiently exclaims, "A man builds a house to spend his later years in, and sells it before the roof is on; he brings a field into tillage, and leaves other men to gather the crops; he embraces a profession, and gives it up; he settles in a place, which he soon after leaves to carry his longing for change elsewhere. If his private affairs leave him any leisure, he plunges into politics. If, perchance, he has a few days vacation, he will travel hundreds of miles to shake off his happiness in a railway train."

One of the first reasons for the abandoned farms of New England, then, is the inherent restlessness of the American boy. That this innate restlessness should take active form, however, was a direct result of changed conditions. The conditions and problems presented to the New England farmer of today are very different from those of even half a century ago. In the earlier days, the chief end of the farmer was to supply the immediate food requirements of his family and of his few animals, with possibly a small

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surplus to barter for clothes, or the material from which to make them. Today, the farmer is essentially a business man, buying and selling, and competing with other business men.

The early farmers of New England worked hard, lived simply, and had few debts; but also had few of the comforts of life, as we understand them at present. A race of sturdy, efficient men and women was the result; men and women who have made their mark wherever they have gone, in the gradual settlement and development of the country. There was, however, in spite of the intense loyalty of these sons of New England, a feeling of unrest; a sense of being cramped; a reaching out after newer fields and quicker returns. And this feeling was intensified as the views of young men were broadened by contact with others during the period of the civil war.

Many farms of the East have been literally carved from the hillsides, and the labor incident to the management of such farms is great. As a result, even during the first half of the last century, many of the best young men were attracted away from the old homes to the newly developing Northwest Territories. With improved transportation facilities, which developed rapidly after about 1850, bringing eastern farms into direct competition with the cheap and fertile lands of New York, Ohio, and Michigan, and soon with the black prairie lands of Illinois, Minnesota and the Red River, — lands which could be had almost free of cost — the value of all agricultural lands in the East fell. The New England farmer found himself, with depleted soil and rigorous climate, growing wheat and corn which had to compete in the open market with similar products from the rich lands already mentioned. He found himself raising sheep and cattle in the old expensive way, to compete with the product of the great plains. He found his sons leaving the old home and joining the ranks of the factory hands; or moving west, to grow up with the country, and swelling the ranks of those with whom he must compete. In other words, with the development of agriculture in the West there was a corresponding retrogression in the East.

Instead of meeting the problems mentioned in the forceful, intelligent way we should expect from the sons of New England, the farmer of the East lost his grip and his spirit. He sought

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other professions, crowded the ranks of the factory workers, and increased the consuming population at the expense of the producers. "Abandoned" and neglected farms became common. They were commonly referred to as "worn-out farms"; but this term was a misnomer. The hillsides of New England abounded, and still abound, in plant food, and here is where the New England farmer missed his opportunity.

Until the outbreak of the civil war, the American people were a people of small undertakings. The country stores and peddlers' carts handled the inland trade, and the business of the whole country was done locally. If, in the face of the sharp competition already referred to, the farmers of New England had exercised their Yankee ingenuity to make two blades of grass grow where one grew before, in other words, had shown more faith in the land and had worked it to better advantage, there would never have been the "decadence of New England agriculture" so often mentioned. But the continual reliance upon hay as the leading crop, and the failure to handle in a rational manner, land that might easily be cultivated, lost the day for a time at least.

Another very important reason for the abandonment of certain New England farms, or portions of farms, is the fact that even in close proximity to such farms may be found other lands that are equally productive, or more so, and that are easier of cultivation. In other words, our forefathers, in carving their farms out of the forest, almost invariably chose the hillsides, even though the land was rocky and relatively poor; for the valleys were frosty by reason of the absence of atmospheric drainage, while the surrounding forests protected the hillsides from the sweep of winter winds and summer gales.

As the forests have been cleared away, the hills are swept alike in summer and in winter; the valleys have become better drained, and the relatively poorer character of the hill soil has become manifest. As a result of this, the owner of such lands, even though he may remain in the vicinity of his old home, sees that as a business proposition it is sometimes wiser to apply his energies to the more easily cultivated fields.

As our fathers moved westward, with the development of Ohio, Indiana, and Michigan, the same mistakes were again made.

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One settler would locate a square mile of territory in a most advantageous section. Another, to be nearer human neighbors, would select an adjoining tract which, upon development, proved relatively worthless. And so the constant change is continued, from one side of the continent to the other.

In New England, fortunately, these relatively poor areas, if left to themselves, will soon become reclothed with Nature's own covering, the forest. For this reason, every owner of New England's farms should be an earnest sympathizer with the principles of rational forest management. The "bushy pasture" of our day may be the most valuable part of the farm in our children's day.

A third very important factor in the accumulation of abandoned farms, is that of injudicious management. The old notion that "anybody could be a farmer," has been the cause of the undoing of a vast number of farms, as well as of a much larger number of farmers. Injudicious cropping, slovenly tillage, continued removal of plant foods without returning an equivalent, failure to remove excessive amounts of water, have all combined to bring about the condition often referred to as "worn-out land."

The Problem of Worn-out Lands.

Admitting, as we must, the fact of a large number of depleted farms in New England, some of which are abandoned, and others which should be, as human habitations, the question naturally arises, What are we going to do about it?

So-called "worn-out" lands may be the result of several distinct conditions, viz.: (1) They may lack humus, either from too much or from too little cultivation. (2) They may lack plant food. (3) They may have become acid. (4) They may need draining. (5) They may need tilling.

Lack of Humus.

In its native condition, the land is covered with forests and other forms of vegetation. As the leaves fall, or the plants die, they decay and become incorporated with the soil as organic

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matter, or "humus." It is this organic matter which makes the soil mellow, dark colored, and rich; which changes a sterile clay-bank into a fertile clay-loam field. It makes the soil soft and sponge-like, enabling it to hold moisture and air, thereby lessening extremes of temperature and hastening chemical activity. It also, in itself, supplies plant food.

When land is brought under cultivation, its virgin condition is gradually lost. The humus is gradually used up, and if not replaced, the land becomes hard and "dead." If clay, it bakes and turns up in great clods or lumps when plowed; if sand, it "leaches." This is the result which may be expected when hoed crops or grain crops are grown on the same land for a long series of years. One great value of stable manures is the supply of humus which accompanies the plant food.

Whether a soil is deficient in humus, is usually evident without experiment; the texture of the soil being a sufficient guide. If there is a deficiency, it may be supplied by stable manure, muck, leaves, or by turning under a green crop. But in the absence of the spongy texture which the presence of humus insures, the application of excessive amounts of commercial fertilizer is useless and wasteful. Many so-called worn-out soils contain an abundance of plant food, but it is not available because of the physical condition of the land.

Lack of humus may result from too little cultivation, as well as from "running" the land. One of the greatest drawbacks to successful agriculture in some parts of New England, has been the blind reliance upon hay as the money crop. There are, within sight of my office, hay fields which to my own knowledge have not been plowed or fertilized for fifteen years, and it is not uncommon for fields to be mown for twenty or twenty-five consecutive years without renewal. Such fields not only use up the available supply of humus, but the grass plants themselves die or are crowded out. The remedy for such fields is evident.

Lack of Plant Food.

The only sure way to determine whether plant food of a certain kind is needed, is to ask the question directly of the land. In certain cases the chemist may render assistance; but in general

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he can only suggest possibilities. The particular sample of soil which he analyzes may be deficient in certain elements, but a sample two rods distant may tell an entirely different story. Again, the chemist is unable to tell how much of the plant food present is available to the plant; differences of mechanical conditions having an important influence in this respect. Even the poorest soils, as pointed out by Roberts,* have an abundance of food for several crops, while the richer ones may have enough for several hundred. By the action of the acids present in the roots of growing plants, and by exposure to the open air, due to tillage, this natural supply of food is gradually made available. Frequently, however, the amount available at any one time is not sufficient to produce satisfactory returns; hence the necessity of an artificial supply, in other words, fertilizer.

The Need of Lime.

For more than two thousand years, lime, in some form, has been employed for agricultural purposes. Its effect upon plant life is not as a direct fertilizer, but as an agent for neutralizing an acid condition of the soil, which is unfavorable to plant growth, and liberating plant food which may be in an available form. In New York, Pennsylvania, and especially in Rhode Island, liming is practiced extensively and with very favorable results.

The need of lime on upland soils is often indicated by a growth of sorrel and by the failure of grass, clover, root crops, etc. to make a satisfactory growth, even when well tilled, properly drained, and thoroughly enriched. A simple chemical test may also be made by placing a piece of blue litmus paper, which may be obtained at any drug store, in contact with a little moistened soil from the field. If the soil is in an acid condition, the blue paper will become red.

Lime, when added to the soil, unites with the acid substances tending to neutralize or "sweeten" the soil. It also acts upon potash compounds in such a way that lime takes the place of the potash, setting the latter free for the use of the plants. It favors

* Roberts, Fertility of the land.

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the growth of clover and other leguminous crops which utilize the free nitrogen of the air, and thus saves the expenditure of money for this most costly plant food.

A word of caution may not be out of place in this connection, for excessive amounts of caustic lime may be injurious to the very plants which are benefited by moderate amounts. This seems to be specially true of leguminous plants, particularly if the soil is but slightly, or not at all, acid. It is likewise true of the potato, for, as shown by the Rhode Island Experiment Station,* lime favors the growth of the potato scab fungus.

The Need of Drainage.

Water is the medium by which the plant food of the soil is made available. This water, however, must not be in the form of standing water, for such a condition is injurious both to soil and to plant.

That soil is best fitted for plant growth in which the spaces between the particles of soil are filled with air, and the particles themselves are coated with a film of moisture. It may be stated as a general rule that "All lands in which the spaces between the soil particles are filled with water within less than four feet of the surface, would be benefited by underdraining."

At this time, and with this company, however, a discussion of the theory and practice of underdrainage is unnecessary. Suffice it to say, it is a self-evident fact that the first step in reclaiming some of the abandoned farms of New England, is the removal of surplus water.

The Need of Tillage.

As is well understood by every intelligent cultivator of the soil, the physical condition of the land is of much more importance than mere richness in plant food. Plant food is of no consequence unless the plant can make use of it, and hard or lumpy soil will

* The most valuable studies of the effects of lime upon the "worn-out" soils of New England are those of the Rhode Island Station.

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not produce good crops, no matter how much fertilizer may be applied.

Any clay soil may be so injured by one season's injudicious management as to render it comparatively worthless for several succeeding years; and there is very little doubt that a large proportion of the "worn-out" farms of New England are unproductive simply because not in proper physical condition. As already stated, the average New England hillside contains a sufficient amount of food material to produce good crops; tillage, by improving the texture of the soil, is the key to unlock this store. On those lands devoted to the hay crop, the practice, at long intervals, of turning over the soil after haying and, after two or three superficial workings, re-seeding, cannot be too strongly condemned. The value of tillage in aiding chemical processes is readily seen. By warming the soil and admitting oxygen, the decomposition of organic matter is hastened, plant food is set free, and nitrification is promoted. The latter is, perhaps, the most important of the effects of cultivation. Nitrogen is abundant, being an important element of every plant and animal, and forming four-fifths of the atmosphere; yet this is the element which is most difficult to secure and most expensive to buy. The good farmer provides his supply of available nitrogen from year to year, largely, by stirring the soil.

What of the Future?

Thus far in this discussion an attempt has been made to bring to mind, as concisely as may be, some of the possible reasons for the unproductive farms and portions of farms which have been, or apparently should be, abandoned. Having ascertained the reason for the condition existing in a given instance, the application of specific remedies is not a difficult problem.

Deficiency in plant food may be met by the use of concentrated fertilizers. Lack of humus, as already indicated, one of the most common troubles, may be corrected by the use of green manure, as clover, in those cases where stable manure is not available. In cases of acidity of the soil, when leguminous crops cannot be grown for the supply of humus, an application of lime at the rate

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of from one to two tons per acre will accomplish wonders. The application of wood ashes, which contain 30 to 40 per cent of lime, with varying amounts of potash and phosphoric acid, are also frequently used with remarkable results.

(The speaker here quoted numerous figures from the crop reports of the U. S. Department of Agriculture showing that in almost every instance where New England soils are devoted to crops requiring cultivation, the results compare very favorably with those of western regions.)

The Possibilities of Fruit Growing.

The younger generation can scarcely realize that fruit growing is still in its infancy in New England, and that in this direction is the most hopeful outlook for the future of New England agriculture. From the earliest settlements on the Massachusetts coast till the present day, fruit has been grown in New England. Peaches, plums, pears, and apples galore have been introduced from England France, and Belgium. Until about fifty years ago, however, there was very little of the fruit we know today; and that little was produced, largely, in the gardens of a few enthusiastic lovers of fruit. Apples were then produced from natural seedlings, growing without care or attention, and were of more importance for cider than for any other purpose. Pears of delicious quality were grown, but mostly on a small scale for home use or home markets.

But now all this is changed. We are beginning to recognize the fact that a large part of New England, rough though it be, and difficult of manipulation for the ordinary farm operations, is well adapted to the production of fruits of the highest color and finest quality. We are beginning to realize that with a moderate annual expenditure for labor and plant food, we may reap a rich and sure return; and that right at our doors are the best markets in the world for a commodity which we can produce as readily as we can make shoes or cotton cloth.

Over much of the area of New England, apple trees grow almost spontaneously; and wherever, in the past, seeds may have been scattered, we may find trees growing. These old trees, though

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neglected and broken by storms, usually produce some fruit every year and are frequently loaded to the ground. When given half the chance of ordinary farm crops these same old trees, re-grafted to varieties of recognized merit, become the most valuable assets of the farm. In this connection I have in mind an old orchard in southern Maine, set more than 80 years ago, and naturally somewhat decrepit now. In three successive years recently, this orchard, covering about two and one-half acres, yielded 650, 400, and 350 bushels respectively; which brought the owner $480, $300, and $350, or an estimated net profit to the owner of 75 per cent.* These old moss covered, neglected veterans, hardy as maples and refusing to die, stand as living witnesses to the possibilities of New England's hillsides.

Nor is the testimony confined to these old veterans. Very many modern instances of men who have accumulated a competence from old rocky pastures by the aid of the apple tree might be cited. Phineas Whittier, Maine's "apple king," began his labors as a fruit grower about 1850 with the purchase of 90 acres of most unpromising rocky pasture and woodland for the sum of $400, of which he was only able to pay $75 down. Apple trees were set wherever a place could be found among the rocks, and today there are substantial buildings, including fruit cellars and evaporating house; and the annual returns from the orchard, which now covers nearly 100 acres, are from $3000 to $6000.

Only a few weeks ago, in conversation with the owner of an "abandoned farm" in Maine, the following interesting facts were brought out: The owner a resident of Waterford, Oxford County, was a young married man and wished to branch out somewhat in his farming operations. In 1886 an abandoned farm of 136 acres one and a half miles from home, was bought for $650. This is what is known as a hill farm, and apple seedlings grew almost spontaneously. At the time of purchase there was a thick growth of natural apple seedlings over the abandoned fields. Some of these had been top worked, and that year yielded 20 barrels of fruit. The same year the owner set three hundred trees and began grafting the other seedlings. Such wood and timber as there was

*Cited by D. H. Knowlton, Me. Pom. Soc.

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on the place was sold on the stump at $4.00 per thousand, instead of spending time and labor in clearing.

During the first three years the young orchard was cultivated and planted to corn, the old trees being in pasture, but there was an annual application of 8 to 15 pounds per tree of fertilizer made up of 200# nitrate of soda, 600# muriate of potash, 600# ground bone.

As indicating the earliness of fruiting, one of the top grafted trees, the third year from grafting, produced three barrels of Baldwins, and the fifth year five barrels. The tenth year (1896) there were sold from the place 275 barrels of Baldwins at $1.00 per barrel, mostly from the top worked trees, of which there were about three hundred.

In 1900	there	were	sold	600	bbls.	at	$1.43½	per	bbl.
" 1901	"	"	"	30	"	"	2.50	"	"
* " 1902	"	"	"	350	"	"	1.25	"	"
" 1903	"	"	"	350	"	"	1.75	"	"
" 1904	"	"	"	550	"	"	1.43	"	"
† " 1905	"	"	"	375	"	"	2.65	"	"

The high prices realized are due to the excellent fruit and the fact that it is held in a storage house — built on the place from the profits of the orchard — until the price is satisfactory. In 1900 and 1904 the *net* returns from this small hillside orchard on one of Maine's abandoned farms were nearly $500. In 1905 the net returns were $700, and the orchard is not yet at its best bearing age.

In 1886 this gentleman in question was in debt $1500. In twenty years he had raised a sturdy family; paid every debt, and about $1000 in doctors' bills; built a stable, a storage house, and repaired other buildings; and has a snug bank account, substantially increased by the past year's returns. Best of all his boy is an enthusiastic helper and will follow in his father's footsteps.

The case cited is not an isolated one. There are hundreds of farms in Maine, and no doubt in other sections of New England as well, that would give even better returns on a similar investment. Last year a farm of 57 acres, on which is a thrifty Baldwin orchard

* Serious attack of pink rot.
† Sold in November.

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of 150 trees, was placed upon the market at $1000. This same farm has repeatedly returned $500 from the trees alone. The rest of the farm has been in hay until it is one of the "worn-out" farms; but the buyer of such property is sure of liberal interest.

I have not referred to the brilliant successes of Terrill and Kinney of Vermont; Ricker of Maine; Solon Chase, whose record with "them steers" is familiar to many; nor to the larger operators like Hale of Connecticut, and others of Massachusetts, who have shown the possibilities in fruit growing. Suffice it to say there are hundreds of small orchards throughout New England which during the past ten years have averaged their owner a net profit of 15 to 40 per cent on the investment. And this is better than raising corn at 25 cents per bushel 2000 miles from market, or ten hours daily work in the factory. It is better than raising hogs or even peddling milk. It is an occupation which takes a man out into God's sunlight during the day; which develops his power of observation and his love for growing plants; and which leaves opportunity for home life, for study and for social development during the long winter evenings.

(The speaker here introduced letters from practical orchardists showing what had actually been done on "abandoned farms.")

Value of Orchard Lands.

In view of the recognized value of the orchard crop, it is indeed surprising that orchard land, in close proximity to railroad and steamboat points should be held so low. It is more surprising that there are not numerous syndicates for the exploitation of these orchard lands. There is not the slightest doubt that with proper management the owner of apple orchards in New England is surer of a liberal return on his investment than is the owner of orange groves in Florida or of silver mines in the West.

Some of the best orchard lands in Maine may be bought for from $5.00 to $50.00 per acre; and I know of hundreds of acres within 100 miles of Portland that might rival the great orchards of the Ozarks.

The orchards already in bearing, as in one case already cited,

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are sold at surprisingly low figures. But there is every indication that the tide has turned and that the fruit interests of the East are to receive a measure of the attention which their importance demands.

I would not minimize the difficulties attending fruit growing. Mice and countless hordes of insects and fungous enemies demand that the fruit grower be ever on the alert. But there is no business or occupation which will permit a man to "sit and sing himself away to everlasting bliss." The successful orchardist must wage an eternal warfare, just as is the case with any other successful business man.

An Investment Plan.

A few years ago the secretary of the Maine State Pomological Society outlined a scheme for forming a fruit growers stock company which, while it seemed altogether feasible, has not, so far as I am aware, been carried out in New England, though similar organizations are very successful elsewhere. In the West and the South, companies have purchased land, planted trees on a large scale, sold capital stock, and declared satisfactory dividends. What has been done there can be done in New England.

There are few if any absolutely safe investments that will appreciate in value as rapidly as a New England orchard. Excellent fruit land may be purchased almost anywhere in New England for $10 to $50 an acre. If set with desirable sorts of apples, and given intelligent treatment, these same lands will at the end of ten years be worth at a low estimate $100 an acre; while in fifteen years they will be returning a handsome dividend on a valuation of from $300 to $800 an acre. The increasing value of the orchard from year to year, up to twenty-five years of age, is an important factor in the problem. To be sure the orchard must be cared for and protected during the first ten years; but this is not by any means a dead load to carry. Many of the lands which may be included in the tracts purchased, already contain profitable bearing orchards. Small fruits or sweet corn, potatoes and other hoed crops may be grown in the young orchard to meet the expense of cultivation and fertilization. "Fillers" of Wealthy or some other

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early maturing sort, which will come into bearing in five years, will pay the expense of the orchard before the main trees reach their prime.

An investment of this nature will certainly stand investigation at the hands of conservative capitalists.

Possibilities in other Directions.

While I firmly believe in the future of New England as an apple producing region, there are many other ways in which the abandoned farms may be utilized to advantage. The reclaiming of "poverty flats," and similar unpromising areas in other sections of Massachusetts, has shown the capabilities of some of the lands as market gardens. The unqualified success which attends the intelligent management of dairy herds in all parts of New England; the almost unlimited demands for the superior sweet corn which is grown in Maine and elsewhere; the success attending the extensive operations of Professor Sanborn of New Hampshire, in the line of general farming; the rapid advance in the production of potatoes, since the introduction of improved methods; all of these and many more actual, commercial operations, go to show the possibilities in the direction of a new agriculture for New England.

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GENERAL DISCUSSION ON HARDY FLOWERS.

OPENED BY EDWARD O. ORPET, SOUTH LANCASTER, MASS.

Saturday, February 17, 1906.

A general discussion of the subject of hardy perennial flowers and their culture was held at Horticultural Hall today. Edward O. Orpet opened the discussion and spoke on the topic of the day substantially as follows:

He said that this was the second time he had spoken before this Society on the subject of hardy garden flowers. This style of gardening had been crowded out in years past by the formal carpet garden, but was now rapidly coming to the front again and was receiving the attention its merits deserve. William Robinson of England has done more than any other man living in advocacy of the hardy garden. He brought out the woodland flowers and called attention to the fact that many of the wild plants were more beautiful in the garden than in the wood.

There are two systems in common use in the arrangement of the hardy garden; the massing of plants for color effects, and the mixed border. Each method has its advantages and disadvantages which will be brought out in the course of this discussion. It is generally necessary to include some tender plants and some annuals in the hardy garden to fill the gaps which are sure to occur and to insure a continuous succession of floral effects throughout the season.

It is a difficult matter to make all kinds of plants grow in the same soil, especially when we consider the yast territory from which the various species have been drawn. Lilies, for example, do not like a rich soil, but phlox and larkspur cannot be overfed, and others prefer a poor soil.

In the preparation of the garden it is essential to work the soil

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thoroughly to the depth of eighteen inches and to fertilize all through. This will enable it to go through a dry season successfully, for we are likely to have every year at some time in the course of the season such a dry period, when the value of this deep cultivation will be appreciated.

Bulbous plants are quite a factor in the hardy garden; narcissi are splendid plants for planting in the spring garden; but the variety *Horsfieldii* is subject to disease and he knew of no way to successfully propagate it; it will die out after a few years. He had never heard of a person who could successfully perpetuate *Narcissus Horsfieldii* or *Lilium auratum*.

There are only three good columbines: *Aquilegia cærulea*, blue; *A. chrysantha*, yellow; and *A. Canadensis*, red. Another of our native species, *A. longissima*, was at one time grown in the Harvard Botanic Garden but has long since disappeared and it seems to have been dropped from cultivation. The European varieties are unworthy of a place in our gardens.

Larkspurs are important in the garden and should be permanent inhabitants of the border. There has been some trouble with them in recent years from the spikes blasting and blackening, caused by insect attacks. This can be remedied by spraying with a solution of Ivory soap or some other insecticide. *Delphinium grandiflorum* can be treated as an annual and made to produce masses of intense blue late in the season, by sowing outdoors in May.

German irises have always been a good thing for the hardy garden, but owing to the very serious disease now prevalent among them he would not advise planting them any more.

There are very many beautiful native plants which do splendidly in the hardy garden; among them may be mentioned the *Asclepias tuberosa*, or butterfly weed, a really splendid thing; and the *Mertensia Virginica* with its intense blue is desirable. The Thalictrums are especially valuable; some have foliage as beautiful as the maidenhair fern and are useful for mixing with bouquets of sweet peas.

Peonies have suddenly sprung into a very wide popularity; indeed, we are in the midst of a peony craze, all due to the revolution in popular opinion concerning hardy plants. We have just worked up to an appreciation of the value of the peony in the hardy garden.

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Phlox is another indispensable plant and the names of desirable varieties are legion, and the colors likewise. It is one of the most vigorous feeders of all and should not be allowed to remain over two years in one situation for it will starve itself out in that time. To secure late flowering, even into October, it is only necessary to cut off the early spikes and others will follow later.

The lupin also is indispensable; its only defect is in dying down early in the summer, leaving a naked space in the garden; the most suitable variety is *polyphyllus*.

Pyrethrums, or as Robinson calls them, painted daisies, single and double, are highly recommended and they can be divided safely soon after flowering.

The following is a list of absolutely reliable lilies: *auratum platyphyllum, Hansoni, Henryi, Batemannæ, tigrinum* and its variety *flore pleno, Thunbergianum* or *elegans, speciosum album* and *melpomene, superbum,* and *Canadense.* They require deep planting, about one foot, and it is a mistake to plant them otherwise. Amidst rhododendrons is an ideal place in which to plant lilies. The California lilies, *Humboldti* and *pardalinum,* although very handsome species, will not succeed in the East.

Anemone Japonica, a valuable fall flowering plant, although reputed to be hardy, he found impossible to keep through the winter without protection, and he had been obliged to grow it in pots, taking it under cover during the colder months of the year.

Many other plants that are hardy in Europe he had found were not so in this part of the country. Canterbury bells (*Campanula*) were never hardy with him; foxgloves (*Digitalis*) suffered terribly from the attacks of field mice; and other border plants, especially along stone walls, were subject to the ravages of this insidious pest for which there seems to be no remedy; and he could not make any success with hollyhocks. *Coreopsis lanceolata* and *grandiflora* were not reliably hardy, and he had experienced trouble with *Campanula persicifolia Mœrheimii* not wintering.

Most of the hardy perennials are old and well-known species and there have been comparatively few new things introduced in recent years. Among the best of the new introductions are *Incarvillea Delavayi,* if it is hardy; *Astilbe Davidii,* six feet in height, with reddish-pink flowers; *Polygonum Baldschuanicum* of Chinese

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origin, shrubby, passing out of flower the first week in November; *Rehmannia angulata*, a beautiful plant but not hardy with him; *Lycoris squamigera* (*Amaryllis Hallii*) perfectly hardy, flowers rose-pink, blooms in the late summer and fall; and a new species of *Meconopsis* collected by Wilson and just introduced from China; this last of doubtful hardiness.

There are doubtless many other plants in China, Thibet, and Siberia which will be valuable additions to the hardy garden. We have hardly begun to know the floral wealth of these countries and many new treasures doubtless await the collector. We owe the introduction of many new plants to the doctors stationed in these far-away places, for there seems to be affinity between doctors and botany.

Inquiry is often made for plants suitable for shaded places. For this purpose may be especially recommended Fortune's variety of the lily-of-the-valley, which grows and thrives amazingly under pine trees. It is excellent both in quality and quantity. By covering it in the winter with straw spread over the snow the frost is retained for two weeks longer and the flowering period thereby lengthened. Other species suitable for shady places are English daisies and primroses, *Vinca minor*, *Aegopodium Podagraria*, *Cypripedium spectabile* or *reginæ*, and *Primula Sieboldii*.

There are some undesirable plants in hardy borders of which a warning is necessary for they thrive at the expense of others. Among these are *Boltonia asteroides*, a terrible thing to spread, extending sometimes one to three feet in a single season; *Helianthus rigidus* has the same habit; *Monarda didyma* deteriorates in the center and should be occasionally replanted; *Physostegia Virginiana* has wonderful vigor and should have no place in the mixed border; *Achillea Ptarmica*, the pearl, spreads and grows amazingly; and *Aegopodium Podagraria* has cost the New York parks thousands of dollars to eradicate.

Mr. Orpet presents in connection with his remarks the following lists of what he considers the best twelve perennial plants and the best twelve ferns.

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Best Twelve Perennials.

Trillium grandiflorum	*Campanula persicifolia*
Mertensia Virginica	*Papaver orientale*
Asclepias tuberosa	*Dictamnus Fraxinella*
Lupinus polyphyllus	*Veronica longifolia subsessilis*
Aconitum autumnale	*Helianthus mollis*
Anemone Japonica	*Lychnis viscaria, flore pleno.*

with alternatives of *Delphinium, Phlox, Iris, Pœonia,* and *Aquilegia.*

Best Twelve Ferns.

Aspidium marginale	*Adiantum pedatum*
" *acrostichoides*	*Phegopteris hexaganoptera*
" *Goldieanum*	*Woodwardia angustifolia*
Osmunda cinnamomea	" *Virginica*
" *Claytoniana*	*Dicksonia punctilobula*
" *regalis*	*Onoclea Struthiopteris*

Mr. Orpet said that the *Veronica longifolia,* var. *subsessilis* was one of the best hardy perennials and if he could only choose one out of them all it would be this. Lilies have a habit of disappearing after a year or two; also the new Japanese varieties of tree peonies, with large single flowers, are not hardy and die out after a few years. He said that no remedy was known for the hollyhock disease. He did not approve of spreading manure on the flower-bed borders; it was unsightly and hard to scrape off. The better way was to thoroughly mix it with the soil at the beginning and to renew it in the same way when necessary.

Mr. Orpet stated that *Anemone Japonica* is a doubtful plant, and he left out *Lilium candidum* because he had found a better one to put in. He never dreamed of planting *Lilium tenuifolium* in New England; he knew of no more treacherous plant. It would be all right if you could grow it but it is certain to die out. He recommended instead *Lilium pomponium.* He doubted if there was a bulb of the new *Lilium Sutchuense* in this country. Lilies should be planted a spade's depth, or about twelve inches, so as to get the stem roots which are emitted above the bulb.

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It is safe to transplant immediately after flowering. A good way to cover the ground left bare after the dying down of perennial poppies is to fill in with scarlet salvias for fall flowering. This plan works out very cleverly in preserving the color scheme of the garden, as the color of the poppies is too strong for almost anything else to go with it, although some salmon colored new varieties of oriental poppies are now coming on.

In reply to a question why he did not recommend hardy chrysanthemums he said he had wondered why they were not grown more, but in his experience they were crippled up with the cinch bug stinging the stems, and what the bugs left the winters usually killed. He could not grow them outdoors but recommended growing them in pots.

In reply to an inquiry as to the desirability of covering the hardy garden with leaves in winter Mr. Orpet said that it is never a mistake to cover anything. The hardy garden should not be dug over except when it became necessary to renew the plants.

Duncan Finlayson asked Mr. Orpet which he considered the better system, the mixed or the massed borders.

Mr. Orpet said that on the whole he preferred the mixed borders. In the mass system there is bound to be in time great gaps. He liked the old-fashioned border. He noticed Mr. Bowditch in the audience and he would like to have him express his opinion on this point.

James H. Bowditch said, in reference to the two systems of hardy planting, mixed or massed, that it was hard to condemn any system without knowing the conditions attending it and the purpose it was designed to serve. There are spring gardens and summer gardens, and even winter gardens, each of which requires its own special treatment. In general terms, however, gardens of small area are usually better treated by the mixed border method, whereas large gardens lend themselves, oftentimes, most admirably to the mass system.

J. Woodward Manning said that he considered *Amaryllis Hallii* one of the most beautiful of our hardy plants but he had found *Lycorus squamigera*, which was supposed to be the same thing, not hardy. He thought these two plants might have some horticul-

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tural differences. Some of the original plants of *A. Hallii* are still in existence in Massachusetts. In his experience *Polygonum Baldschuanicum* was really hardy.

In his business he had to do with about 3000 plants; there were 1200 named varieties of phlox, 800 of delphiniums, and many Japan irises; but among them all he thought there were really not more than 20 distinct kinds of each. When we buy plants we often buy a great variety of names instead of distinct kinds.

William N. Craig in response to a request spoke on the culture of *Eremurus*. He said he grew four varieties: *Elwesianus, robustus, Bungei,* and *Himalaicus*. They were grown in a mixture of meadow muck, loam, leaf mold, and sand, about two feet in depth, and received a coating of leaves as a winter protection. Spikes of *E. robustus* and *Himalaicus* seven to seven and a half feet high were produced annually. Great care was needed in transplanting as the roots were exceedingly brittle and easily broken.

Replying to the statement made by Mr. Orpet concerning the hardiness of *Anemone Japonica*, Mr. Craig said that it had proved perfectly hardy at North Easton and had withstood 25° below zero with merely a light protection of leaves. Plants raised from root cuttings would not flower so soon the first season after planting out.

Continuing, Mr. Craig said that *Rehmannia angulata* propagated itself abundantly from the stolons; some plants had wintered out, but some were stored in a frame in case the others died. He would add *Lilium Brownii* and *L. excelsum* to the list of reliable sorts of lilies. To secure a late bloom of herbaceous phloxes some of the shoots on each clump might be pinched back early in the season, and cuttings taken in April, rooted in sand, and planted out the middle of May, during moist weather, would produce splendid heads in October.

Annual hollyhocks, if sown in March, would bloom in July; some of these were of undesirable colors, but the race promised to be a valuable one. Montbretias, divided and planted out in October, were perfectly hardy on well-drained ground with a coating of leaves over them. *Galtonia* (*Hyacinthus*) *candicans* planted with *Papaver orientale* followed the latter and covered over the bareness caused by the dying down of the Papaver after blooming. *Malva moschata alba* and *Veronica longifolia subsessilis* he considered two very valuable perennials.

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Personally he preferred mixed borders of perennials without the attempt at massing, and considered them most appropriate for all but the largest places. In very large beds and borders, however, massing was necessary to secure a good effect; individual plants producing no effect at all.

John W. Duncan said of *Anemone Japonica* that he considered it one of the best hardy perennials for this locality. From experience he had found it difficult to manage in southern New England, but here where the nights were cooler it did much better. The finest lot of it he ever saw was on an estate on the North Shore last autumn, some time during early September. There was a perfect mass of fine flowers. On inquiry of the gardener in charge as to its treatment he learned that it had been planted there for several years, the ground first being deeply trenched. No protection was given until the ground froze, when a covering of dry leaves was all that was necessary.

Speaking of garden lilies Mr. Duncan thought it a mistake for Mr. Orpet to omit from his list *Lilium candidum*, and that the Siberian coral lily, *L. tenuifolium*, should be in every collection. He inquired concerning *Lilium Sutchuense* which had been recently introduced from China, if it had been tried in this country. Speaking of other hardy flowers he said that a writer in a recent magazine mentioned *Galanthus nivalis* and *G. Elwesii*, *Anemone blanda*, *Iris Histrio*, *I. Bakeriana*, etc., as flowering during the winter months in the north, but in his experience these did not bloom until April or May.

Mr. Orpet replied that he did not believe these plants bloomed in the north in winter; that *Lilium Sutchuense* had been figured in the gardening papers but he did not know that it had been tried here. He had not included *Lilium candidum* in his list as he had found one to take its place, and *Lilium tenuifolium* had not been satisfactory with him.

Mr. Craig remarked that he had snowdrops in flower January 10, and within two weeks had crocuses, English primroses, and winter aconite in bloom. He said that some plants would flower in the winter even in New England.

Duncan Finlayson by request made a statement of his method of handling *Anemone Japonica*. He said that late in the fall after

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the flowers were cut by frost he lifted them up and stored them in a cold frame covered over with a wooden shutter, with a little air space. This was all the attention they received until early in the spring when they were planted out in the flowering bed.

As *Anemone Japonica* is a late flowering plant he set out between them Canterbury bells, and when the latter were through flowering they were thrown away, as by that time the Anemones would need the room. They were then given some fertilizer, such as sheep manure, and thoroughly watered. By this treatment he found they flowered splendidly each year and by this arrangement he got two flower crops from the same bed. Of course, he said, plenty of fertilizer and water was the secret of his success in this case.

Mr. Finlayson gave also his method of handling Aquilegias, or columbines. Late in the fall he planted them in their flowering beds and between them early flowering bulbs. They were protected during the winter with green boughs and uncovered early in the spring. By the time the early bulbs were through flowering the columbines were showing flowers. Just as soon as the latter were out of bloom he cut the flower stems and transplanted them to a little nursery and planted the beds with other late flowering plants, such as begonias. By this treatment he got three crops of flowers out of the same bed and kept the garden attractive throughout the season. These methods may be repeated each year, or some changes can be made to give a greater variety.

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GENERAL DISCUSSION ON TENDER FLOWERS.

OPENED BY WILLIAM N. CRAIG, NORTH EASTON, MASS.

Saturday, March 3, 1906.

A general discussion of the subject of tender flowers was held today at Horticultural Hall. It was opened by William N. Craig who spoke as follows:

The subject assigned me today is much too big for a single morning's discussion. I propose to speak but little of that vast army of plants known as greenhouse subjects, but rather to devote my remarks to annuals, a class known and esteemed and which is within the reach of anyone possessing a garden. These may be divided into three classes: First, Hardy Annuals, which can be sown and flowered in the open air; Second, Half Hardy Annuals, which require to be started under glass and later transferred to the open; and Third, Tender Annuals, which require greenhouse culture all the time. The two first named classes will be chiefly referred to, for their popularity with the great army of flower lovers is unquestioned.

Annuals, with the possible exception of nasturtiums, prefer ground which has been deeply dug and liberally manured. To be effective they should be used in masses rather than dotted about as individual plants. While some can be relied upon to provide a fine floral display all summer long until cut down by frost, others are more fleeting and, as in the case of poppies, must be replaced by late sown annuals or else bad gaps will be apparent. A little judicious selection will, however, insure a constant supply of bloom.

Sweet peas are by long odds the most popular of all hardy annuals. The immense improvement in them is mainly due to the life work of that most painstaking specialist, the late Henry Eckford of England, who has completely revolutionized this flower, and whose name will ever be held in grateful remembrance for the great work he has done in this field.

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Succinctly put, some of the essentials of successful sweet pea culture have been described as follows: manure liberally, dig deeply, sow early, brush quickly, water freely, and dispod speedily; to which we would add, sow thinly or thin severely. Many failures in sweet pea culture are caused by sowing far too thickly; six inches apart each way is sufficiently thick to leave the plants if strong haulms, and excellent flower stems are desired.

A selection of a dozen first class kinds is, Dorothy Eckford, white; Prince of Wales, rose; Gladys Unwin, pink; Duchess of Sutherland, blush; Miss Willmott, orange-pink; King Edward VII, scarlet; Lady Grisel Hamilton, lavender; Hon. Mrs. G. Kenyon, primrose yellow; Jeannie Gordon, bicolor; Black Knight, maroon; America, red striped; and Navy Blue, blue.

The best six separate colors are, in my opinion, Dorothy Eckford, Hon. Mrs. Kenyon, Lady Grisel Hamilton, King Edward VII, Miss Willmott, and Gladys Unwin. If confined to one variety I would select that beautiful orange variety, Miss Willmott.

Some of the 1906 novelties that are offered promise to be great acquisitions, especially the Harry Eckford, a magnificent orange variety which it is hoped will long perpetuate the name of its esteemed raiser. The Evelyn Byatt, Phyllis Unwin, and Helen Lewis all promise well.

Asters, next to sweet peas, are, perhaps, the most esteemed of annuals both for cutting and massing. Especially good varieties are the Single Chinese, Queen of the Earlies, Mary J. Semple, Ostrich Plume, and Giant Comet. Several diseases affect them, a stem rot or wilt which seems to have its inception in the seedling boxes under glass, for it is practically unknown amongst plants sown and grown altogether outdoors. No cure for this has been found nor yet for the "Yellows" which troubles some growers; new ground is the best preventive for these diseases. Root lice are sometimes troublesome, causing the plants to wilt and die when attacked, and entomologists do not seem to know their life history. New land should be used if possible to avoid them. Black beetles are best kept in check by hand picking; they are troublesome when the flowers are opening.

Schizanthus, commonly called butterfly flower, is one of the most beautiful of annuals both for outdoor and pot culture. For the

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latter purpose the comparatively new and dwarf *Schizanthus Wisetonensis* is the best. By sowing seed late in July nice flowering plants can be had in six-inch pots for Christmas. Later sowings will give a succession until outdoor sown ones come in season. The flowers last a week in water and make beautiful table centerpieces. Some of the taller growing sorts, such as *pinnatus roseus, grandiflorus oculatus,* and *retusus alba* make grand pot plants for spring blooming; but being tall growing they require persistent pinching. They should be staked out like chrysanthemums and flowered in ten-inch pots.

A beautiful piazza group for late spring can be made with *Lilium candidum* rising from a bed of *Schizanthus grandiflorus oculatus,* with an edging of Calceolaria Golden Gem.

Salpiglossis is a beautiful annual. It does best raised under glass and planted out in the same way as asters; seed sown outdoors does not give as good returns.

Amongst poppies none is more beautiful than the Shirley. Of double sorts the Bride, Mikado, and Danebrog are good. These plants, if used for mass effect in the flower garden, must be followed by some other annual as they leave big gaps after flowering. The Yellow Tulip or Mexican poppy (*Hunnemannia fumariæfolia*) lasts splendidly in water, keeping three to five days. It has yellow Eschscholzia like flowers and silvery foliage.

The annual larkspurs are worthy of more extended cultivation whether for massing or cutting, and the rosy-scarlet variety is especially beautiful, as are also one or two chrysanthemums, notably *tricolor Burridgeanum* and its varieties. *Leptosyne maritima* with large, yellow, sweet-scented flowers carried on long stems makes a useful border plant and is excellent for pot culture, blooming freely in February and March.

No annuals give more satisfactory results as bedding plants than verbenas; planted in beds or masses along the borders they bloom from June to October without a break. Separate shades are perhaps preferable but mixed colors look very well. *Phlox Drummondii* carries larger and showier flowers than verbenas but is not so persistent a bloomer; it is, however, a beautiful annual and the scarlet shades are especially rich and brilliant.

The petunia is one of the most easily grown and showy annuals.

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and the Giant type is very fine. For window box culture it is also excellent. Nasturtiums are most useful annuals and should have a place in even the most select gardens. The dwarf varieties in masses are very showy and the tall sorts are excellent for running over rocks, fences, or unsightly objects. They are probably the most desirable of all flowering plants for window box culture.

Zinnias are a common and rather stiff growing plant, but if cut flowers are desired in quantity at a minimum of cost they have no equal.

Pentstemons treated as annuals are very desirable bedding plants. From seed sown in February excellent plants can be procured by May. From cuttings taken in October from the outdoor plants and kept over winter in a frame in flats of sand an earlier crop of flowers can be obtained, although the seedlings seem to make the most vigorous plants. These can now be procured in one or two separate colors and are worthy of a place in every garden.

Antirrhinums for clumps and masses are very useful. Sown at the same time as Pentstemons they also make strong plants by May, and even if not in flower they cover the ground with nice green foliage. The dwarf varieties are particularly good.

I have only touched on a few annuals as I believe the discussion will bring out many more which time will not permit me to name. I would like before closing to say a few words for geraniums of the single English round-flowering type. Grown in frames and housed when chrysanthemums are going past, they acceptably fill a gap in decorative plants at a very dark and floriculturally dull season. These plants flower well in a house with a minimum temperature of 50° to 52° and a rather dry atmosphere; six-inch pots are suitable in which to flower them. A few very excellent sorts are Emile Zola, orange-salmon; Albion and Snowdrop, pure white; J. M. Barrie, bright cerise; Richmond Beauty, scarlet with white feathering on the upper petals; Jacquerie, dark crimson-scarlet; Paul Crampel, scarlet; and Gertrude Pearson, deep pink.

This class of geraniums is of no value for bedding but for flowering under glass in December, January, and February they are without a peer. They ship well, make desirable room plants, and the softer shades can be used to good advantage as dinner table centerpieces.

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Wilfrid Wheeler inquired if in Mr. Craig's experience he had found that it made any difference in sweet peas whether the rows were planted running north and south or east and west.

Mr. Craig replied that rows running north and south do best.

Mr. Wheeler said that the aster beetle was a disgusting bug to handle and he had tried successfully a weak solution of Paris green and water; one teaspoonful of Paris green to two gallons of water. If this were used often it would not be necessary to pick the beetles. By sterilizing the soil one could get rid of the wilt in the greenhouse. He had got good results in Antirrhinums by wintering them in a cold frame and they did better after being so treated. For nasturtiums the poorer the soil the better they bloomed. The best lot he ever saw was growing in two inches of soil on rocks at Falmouth, Massachusetts, near the shore. They were growing almost on bare rock and it was a beautiful sight.

Mr. Craig said that he had forgotten to mention *Nicotiana Sanderæ*, which was introduced last year and had jumped into popularity, and then almost as suddenly into unpopularity. The gardeners around Lenox pronounced it worthless, but in some places it had produced pleasing effects, although the color is rather harsh. It seems to do better in partial shade and some of the more recent introductions are an improvement in colorings.

Another Nicotiana is *sylvestris* with large pure white flowers and broad foliage and stands the full sunshine which *Sanderæ* does not. He recommended also *N. affinis* and its varieties.

Robert Cameron remarked that the hybrids of *Nicotiana affinis* were not so good as the parents and in his opinion not as pleasing; they would be better if the fragrance of *affinis* could have been put into them. He called attention to the merits as a garden flower of *Salvia splendens* which was grown best from seed, and recommended Gilias as very pretty. He said that Torenia was a most beautiful annual and stocks should not be left out of the list. It was a mistake, he said, to plant these garden annuals in small patches; they do best in large masses. The pyramidal forms of Celosia were very fine, and the *Legonia semperflorens* types were desirable.

Duncan Finlayson stated that he had used *Nicotiana Sanderæ* last year, growing it in partial shade, with a background of green

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foliage, and it was very effective. It was a mistake to plant it in rich ground for it flowers better in poor soil. It proved very satisfactory to his people and he was going to use it again this year. It blooms from frost to frost.

James Wheeler said that he had found *N. Sanderæ* grown in pots in the ground very satisfactory. It blooms much better if the pot is plunged in the ground and if pot bound it is all the better for it.

Mr. Craig was asked to recommend plants suitable for growing in window boxes. He replied by saying that the best plant for the purpose that he could call to mind was the Tom Thumb nasturtium; it was a persistent bloomer and he knew of nothing so satisfactory. Sweet alyssum came next and scarlet geraniums were good. Plants with a drooping tendency should be used for the window box. There was not sufficient depth of earth for sweet peas, and zinnias were too coarse and stiff.

Mr. Finlayson suggested petunias as desirable for the window box, and said there were several varieties on the market which would be excellent for the purpose.

John L. Chapman said he had done well with *Nicotiana Sanderæ* as a pot plant, and called attention to the claims of the single varieties of geraniums for the summer garden.

Mr. Craig said that we are too apt to get down to a commercial basis on everything, even to geraniums, and that while the market called for double flowers he thought that the large single-flowered geraniums were more desirable. He said that those grown in five or six-inch pots were destined to be very popular here among the florists, and he could not imagine a better Christmas plant than some of these single-flowered varieties of the geranium. Particularly desirable are Richmond Beauty, Jacquerie, and Paul Crampel for Christmas colors.

Thaddeus Friend spoke of his experiences with sweet peas the past season which had been unfortunate. They came up well and progressed as far as the budding stage but got no farther. They had always done well in previous years. Perhaps the season was wrong, he said, or perhaps he had planted them during the wrong quarter of the moon. He had planted the seed late.

Mr. Craig said that they were probably planted too late to obtain any results, although sometimes the flowering stems will die down.

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The secret of sweet pea culture is to get them into the ground when the soil is moist, and never to plant in the same soil for two successive seasons. The ground should be trenched six inches and the seed planted three inches deep.

Edward B. Wilder spoke of the trouble he had had with his asters from a rot at the base of the stems and asked if there was a remedy for it.

Mr. Craig replied that the stem rot seems to start in the propagating house, and the cause of the trouble is the condition of the soil in the hot bed which weakens the plant and renders it more susceptible to disease. The fact that seed saved from diseased plants, if sown out of doors, came healthy seems to prove this to be the true cause of the wilt of the aster.

James Wheeler emphasized the statement that an important factor in the cultivation of asters and sweet peas was new soil. If these plants are grown in new places there will not be much trouble from disease. If your plants are diseased try new ground and be sure not to use new manure; and a mulching of the beds is productive of good results. He knew of nothing that made a better display than *Salvia splendens*, and *Helianthus cucumerifolius* was also desirable.

Arthur H. Fewkes remarked that lobelia had not been mentioned thus far. He thought it one of the desirable things for the garden.

A lady asked what was the best green to grow for foliage for vases of summer flowers.

Mr. Craig recommended *Spiraea Japonica* and the Thalictrums as effective foliage plants, but in most cases the foliage of the plants themselves was the best.

James Wheeler said that the common garden asparagus was very desirable for this purpose. He further stated that he thought it a mistake for the general public to plant in masses except in the greenhouse.

Wilfrid Wheeler remarked that *Cobea scandens* should be more used as an ornamental plant.

Mr. Craig said that Calliopsis, Gaillardia, chrysanthemums, and most annuals should be grown in masses. The Coreopsis was especially effective, and verbenas and nasturtiums should be included in the list. Mention had been made of the Shasta daisy

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but he thought it not what the introducer recommended it to be. He had not seen any good results from it. He believed there were some good varieties in existence but he had not seen them.

Duncan Finlayson suggested Canterbury bells and foxgloves used as annuals, which could be done if the seed was sown early in the spring.

Mr. Cameron spoke favorably of the everlastings and of the marigolds which would furnish bloom until the frost comes. He said there were few annuals for spring flowering that made a more splendid show than *Silene pendula* if planted in mass.

J. Woodward Manning recommended the dwarf forms of marigolds which he thought more desirable than the tall growing varieties. He also spoke favorably of the Godetia of which the finest bed he had ever seen was at Bar Harbor, Maine, where they seem to do better than further inland; they were as good and as beautiful as he had seen in England.

Mr. Craig added Godetia and also Clarkia to the catalogue of desirable annuals, but stated that people seeing them in Europe are so impressed with their appearance as they grow there that they come back and sow large areas of them; but find they will not stand the hot sun of our American summers. He said that mignonette needs rich soil and that the seeds should be sown the first of April, not later than the tenth, and covered lightly with soil.

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GENERAL DISCUSSION ON SMALL FRUITS.

OPENED BY WILFRID WHEELER, CONCORD, MASS.

Saturday, March 10, 1906.

A meeting of the Society for the consideration of the subject of the culture of small fruits in New England was held today. Wilfrid Wheeler, Chairman of the Committee on Fruits, opened the discussion and spoke as follows:

The subject of small fruits is a large one and to be treated successfully it should be taken up in different branches by specialists. Some general culture methods can be given, but these must be modified to suit the individual needs of the various small fruits. The care of the strawberry is quite different from that of the raspberry, currant, etc.

Under the head of small fruits are included the strawberry, raspberry, blackberry, gooseberry, dewberry cranberry, currant, and a few others which are hardly used enough to mention. Then there are our native small fruits like the blueberry, huckleberry, and thimbleberry. There have been some attempts to cultivate the blueberry, especially in Maine, although the experiments have not been entirely satisfactory, and we shall have to wait a few years before we have our cultivated blueberry farm. But some idea of the importance of the wild native crop can be obtained from the statistics of the state of Wisconsin which markets 20,000 bushels of blueberries, valued at $80,000. This is referred to because it is believed that there are varieties of our native fruits which would lend themselves to cultivation and prove not only profitable, as in the case of the dewberry, but a great addition to many of our gardens.

The importance of our cultivated small fruits will be more appreciated when one considers their wide range of cultivation and adaptability. At present some member of the group is under

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cultivation or growing wild in every country in the world. No other group of either hardy or tropical plants can make this claim. We have these small fruits in northern countries like Sweden and Norway, in the mountains of the Tropics, in the islands of the Pacific, in Australia, in China and Japan; and, in fact, everywhere that man has cultivated the soil we find them always a source of pleasure with their beautiful appearance and delicious flavors.

Here in the United States, where our climate gives us a greater range than most other countries in which to cultivate small fruits, we find all species growing under varying conditions. You will hardly see a garden in the country without a variety of small fruits. Even the landscape artists are using some of them in order to produce certain effects of color and beauty, as in the case of the ornamental raspberries which are often used to cover bare and rocky hillsides.

The ease with which small fruits lend themselves to cultivation, the quick returns, the economy of space, and the small amount of care required are all great factors in their popularity.

So many of us are moving from place to place that we cannot afford to wait six or eight years for the pear and apple or even four years for the plum and peach to reach their perfection, but we must have some fruit growing and preferably those that give quick returns. So here we look to the small fruit to fill a place that is entirely unique in the field of horticulture.

To the amateur, that is the man with a garden which he cultivates for recreation, these small fruits are indispensable not only as a source of supply but as a means by which he is induced to work out in the open both morning and evening and fill his lungs with God's pure fresh air. Then from an economic standpoint the amateur fruit grower is at an advantage for no one can afford to buy fruit who has land enough to grow it upon.

Small fruit growing for amateurs is yet in its infancy here in New England. We find that while a man may spend thousands of dollars upon greenhouses for flowers and vegetables, he will hardly grow enough strawberries, raspberries, etc., for his own table. And while gardeners are encouraged to grow and exhibit fine plants and beautiful flowers, there seems to be little inducement held out for them to grow fine specimens of fruit. It is believed that some day on our larger private estates we shall see the fruit gardener in his

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place as a specialist, and then we shall expect good results. It is often asked why it is that there is not more experimental work done on private places, for it seems as if there, without the keen competition of the commercial world, would be the chance for quiet experiment and test.

The experimental work on small fruits as yet does not amount to much, so many of our best varieties are chance seedlings or have been picked up growing in a wild state; and with strawberries, at least, in very few of them can their ancestry be traced back more than three generations. The variety test of fruits by our experiment stations really effects only a very small area about the stations, for many of our states are so large that entirely different conditions prevail one hundred miles from the station. Instead of sending out reports from the station's own grounds it would be better to send agents through the state and give reports of the fruit as it is found growing in the different sections of the state. The experimental work of the stations should be in the effort to create and establish new varieties of merit, keeping careful records of the crosses by which results were obtained.

To the commercial grower these small fruits are a source of profit when well handled and there is many a farmer who looks anxiously forward to the success or failure of the strawberry crop; knowing that this will determine the financial results of his year. The general interest in the use of small fruits dates back about fifty years, but it is within less than twenty years that this advancement has been most rapid; for while markets were supplied locally fifty years ago the great increase in the use of refrigerator cars has opened up a vast section of fruit growing country in the South and Southwest, and we now have our markets supplied from January to September with these small fruits, beginning with strawberries and ending with blackberries. New England does not grow as many strawberries now as were grown fifteen years ago. Owing to the low prices which prevailed at that time many people were discouraged from embarking in or proceeding further with this enterprise, although there would be a good opening for any surplus crop in New England if it were shipped to southern cities in refrigerator cars, for it is a poor rule that wont work both ways; and if the southern growers supply us before our berries are ripe why should not we supply them after their berries are gone.

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In choosing a location for the cultivation of small fruits try to get one where there is some natural windbreak from the north and northwest. Nothing does a plantation more harm than sweeping winds. In summer the ground is dried and baked by the wind; dust from other fields is blown over the fruit, and the fruit itself dried up and made worthless. In an open winter the coverings, mulches, etc. are blown off and the canes and plants are badly damaged by the cold wind striking directly upon them. Here in the north we have been too careless in the past by cutting off the woods and trees, and, unless the land is to be entirely cleared, a belt of trees should be left about every large field to serve as a windbreak, and where this is impossible evergreens like white and Norway spruce should be planted.

Of the strawberry Dr. Boteler said: "Doubtless God could have made a better berry but doubtless God never did," and A. J. Downing, one of the pioneers in the strawberry field, truly said: "Ripe blushing strawberries eaten from the plant, or served with sugar and cream are certainly Arcadian dainties with a true paradisical flavor," and fortunately they are so easily grown that the poorest owner of a few feet of ground may have them in abundance.

Certainly the strawberry is the most widely grown fruit in cultivation and probably, all things considered, the most popular. Its history is not much older than the discovery of America for we have a record of a description of it in 1485 from one Juan de Cuba. A later writer spoke of it as follows.

"When we contemplate the relation which the strawberry plant bears to other parts of nature, to the sun which expands its blossoms, to the winds which sow its seeds, to the brooks whose banks it embellishes; when we contemplate how it is preserved during a winter's cold capable of cleaving stones, how it appears verdant in the spring without any pains employed to preserve it from frost and snow, how, feeble and trailing along the ground, it should be able to migrate from the deepest valleys to alpine heights, to traverse the globe from north to south, from mountain to mountain, forming on its passage over prairie and plain a thousand mingled patches of checkerwork of its fair flowers and scarlet or rose colored fruits with the plants of every clime, though myriads of animals are making incessant and universal havoc upon it, yet no gardener is neces-

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sary to sow it again, we are struck with wonder and admiration at so precious a gift." Other writers both old and new have written pages and volumes upon this subject and yet we find it never grows old. No fruit is so easily adaptable to all kinds of cultivation, and no fruit lends itself more readily to hybridization. About six natural species are known and from these have been produced in different parts of the world the present great number of varieties with all their varied form, color, productiveness, and flavor.

The strawberry, and this is true of all small fruits, needs a well worked soil, the nature of which need not matter a great deal provided it has the necessary plant food and moisture conditions. However, all things considered, a new soil, that is one which has not been planted a great many years, is best; but if you are restricted to old soil, do not plant often in the same place; rotate your land with other crops, planting legumes between crops of strawberries.

In preparing new land which has been in grass, and this applies to small fruit on a large scale, first see that it is well drained; plough it in the summer just after cutting the hay (subsoiling at this time will be very beneficial); then sow a crop of buckwheat, cow peas, or beans which should be ploughed in green. Keep the land well harrowed up to the time it freezes. It is better to cultivate this ground the second year with some early crop, like cow peas or beans, which have been well manured, following these with another crop of buckwheat which is ploughed in green, and the ground kept harrowed as during the previous year. Just before the ground freezes in the fall plough in a liberal dressing of manure, about ten to twelve cords per acre on new land. The first ploughing in the spring brings this manure which was ploughed under in the fall up to the surface just where the plant roots need it. After ploughing apply a dressing of 12 bushels of lime, 30 bushels of wood ashes, and 800 pounds of ground bone per acre. This dressing will be found all right for new land and for old land increase the amount of manure and ground bone. This fertilizer should be lightly harrowed into the soil with a smoothing harrow; then level the ground off and mark out the rows, running them north and south, either three and one-half or four and one-half feet apart according to your location, and method of growing. If a wide matted row is used plant from four to four and one-half feet apart; if a narrow

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row plant three and one-half feet. Set the plants from fifteen inches to two feet apart in the row; but this rule cannot always be followed exactly, as many varieties run so much, that they would cover the ground if set four feet apart. It is not a good plan, however, to allow them to run so much, for this will reduce the fruit crop, the plants becoming exhausted by making too many runners.

If the plants have been purchased and have come some distance it is well to unpack them in a cellar and bed the roots with some good cool soil in a shady location, if not ready to plant. When ready to set shorten the roots at least one-half and remove all large leaves. It is best to set plants as early in the season as possible before there is much foliage, thus saving this waste in the vitality of the plant. Just before setting puddle the roots in water and clay, if possible, and do not have the plants dropped on the ground much faster than they can be set, for the sun and wind will do them more damage in five minutes than the plants can recover in three weeks.

In setting be sure to firm the soil well about the roots of the plants; you cannot get it too firm. If the ground is mellow and soft the hand can be used for setting, but a trowel is better, provided it is not too large; set the crown of the plants a little higher than the level of the soil so that no earth can be drawn over it in after cultivation. As soon as the bed is set it is well to go over it close to the rows with a scuffle hoe. This serves to level the soil and also to create a dust mulch near the plants, at the same time not disturbing the roots. This scuffle hoeing should be repeated at least twice before a horse cultivator is allowed in the field, for as a rule the ground does not need stirring in the middle of the rows for at least one week after planting. The summer cultivation consists in keeping the ground well stirred, not only between the rows, but about the plants, at the same time removing all weeds. As soon as the first runners appear take them off in order to get the plants well established before making new plants.

As soon as a sufficient number of plants are set about the parent plant to form a bed, cut off all the runners which attach this plant to its offspring; and it is a very good plan at this time to entirely remove the parent as it has a tendency to make plants where they are not needed, and is worthless for fruiting. Keep all weeds removed from the bed as long as they grow, and when the ground is frozen

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slightly mulch the bed with coarse meadow hay held in place by brush or trash wood. The previous directions apply mostly to plants grown in a commercial way and under the matted row system. Many of our gardeners and amateurs adopt this method; however, for a small place summer or fall setting of pot grown plants in hills is to be preferred. In the latter method the preparation of the soil and the after cultivation are much the same as described in the former system, except that the original plant is not allowed to reproduce itself, and hand labor takes the place of horse cultivation. This method produces a number of very heavy crowns which bear abundantly the following season. The plants for a bed under the hill system may be set one foot by fifteen inches apart in beds five feet wide, and if due care is taken of the plants the results from a small area of ground will be very gratifying. Whichever method you adopt the plants should be sprayed at least once a month during the summer and twice in the spring before the blossoms appear. This spraying is entirely in the nature of a fungicide as there is no serious trouble from leaf eating insects.

During the blooming season, if dry, it is well to stir the soil lightly enough to form a dust mulch, and as soon as the berries are half grown lightly cover the ground with some fine meadow hay or cut straw; this will serve to keep the berries clean as well as to make moisture conditions better. Pick the fruit as early in the day as possible, for it is firm and cool then and will keep better and retain its flavor to perfection. Fancy berries should never be picked in deep receptacles; they should never touch each other as the skin bruises very easily and the berries will quickly spoil.

If the fruit is for market make two qualities at the time of picking so it will not be handled twice. The first quality berries should be marketed in trays and the difference in price will repay for extra labor and handling.

The ten best varieties of the strawberry for commercial purposes in this locality are Senator Dunlap, Parson's Beauty, Sample, Brandywine, Glen Mary, Minute Man, Clyde, Haverland, Mead, and Bismarck.

The five best varieties for the home garden are Marshall, Senator Dunlap, Granville, Brandywine, and Nick Ohmer.

The strawberry has few insect enemies; probably the worst is

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the white grub, the larvae of the June beetle, and as this grub works underground on the roots it is hard to fight after it is well established. These grubs are more numerous on old soils, sod land, or on land where potatoes have been previously grown. The best way to rid the soil of this pest is by frequent rotation of crops. This grub dislikes most root crops, like beets, turnips, etc., and it will not work in buckwheat; so if strawberries follow any of these crops very little trouble will be experienced. The leaf eating insects are few, and under ordinary conditions do but little harm. Some seasons the rosebug works destructively on the foliage, and there is also a small black beetle, the strawberry weevil, that bores holes in the leaves. This pest does not appear very often and is not considered dangerous.

The bush fruits to which I wish to call your attention for a few minutes are not as extensively cultivated as the strawberry, principally because they are not quite as easily grown. They require more skilled labor in their management; they take longer to produce fruit; and the attacks of insects and fungus diseases are more numerous; and these conditions mean less profit for the grower.

The raspberry is probably the most popular of the bush fruits, being cultivated in most sections of this country where small fruits are grown at all. The greatest drawback to the successful growing of the raspberry here is our northern winter, for it frequently happens that even with protection the canes are killed and a year's work is lost. In choosing a location for a raspberry plantation it is best to get land that has an abundance of moisture in it, at the same time being well drained. Hillsides facing the north or northeast are generally good places for raspberries, provided they are not too steep.

The raspberry is propagated by root cuttings or suckers which can be taken directly from the ground on which they grew and planted in the permanent beds, or, and this is a better method, by pieces of the roots taken in the early spring and planted in nursery rows, keeping the ground well stirred about them. The following year these may be put in the permanent plantation. The ordinary method of planting is in rows four to five feet apart, but, as there are many objections to this arrangement, it is better to mark out the field six feet apart each way, thus allowing cultivation in both

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directions, at the same time making better space about the plants for picking the fruit and tying and pruning the canes. Root suckers can be removed more easily in this way, and the fruit is exposed more evenly to the sun.

The first year a root crop can be planted among raspberries grown six by six feet and will help defray the expenses of planting and caring for them. However, if a root crop is planted, cultivation can only be carried on in one direction, and this will necessitate more hand labor. In our climate the canes should be laid down and covered with soil early in November. The following spring, as soon as danger from cold drying winds is over and before the buds swell under the cover, remove the soil and tie the canes up to a stout stake. The first year's crop should pay the first cost of setting. The fruiting canes are cut away as soon as the berries are picked and the new canes pinched back in order to make them branch low for it is better to head back the bushes in order to make them stocky and more able to support the weight of berries. Spring pruning consists in cutting out all dead wood and shortening the laterals to about six buds. It is a good plan to sow some leguminous crop among raspberries. Cut the crop when green and leave the top on the ground as a mulch for the plants; this will keep down excessive suckers and weeds during the fruiting season; and afterwards this crop can be ploughed in. The best varieties of raspberries for this locality are Cuthbert, Loudon, Miller, and Worthy.

The black raspberries, or Black Caps as they are frequently called, are grown very extensively in Central New York where more than 1500 tons of the fruit are annually dried or evaporated. This promises to become an important industry especially where local markets are too far away to be supplied with fresh fruit. This dried product which is shipped to places where there is no fresh fruit sells for 15 to 25 cents a pound, and 750 pounds are often dried from one acre. This class of raspberries is not as popular as the Reds, but is grown in many gardens for variety. These black caps root from the tips, and are better planted in the spring. Among the best varieties are Kansas, Gregg, Ohio, Palmer, and Tyler.

The Purple Canes which are hybrids of the Red and Black Caps are among the most productive of all raspberries. The best varieties are Columbian, Shaffer, and Cardinal.

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The blackberry can be treated very much the same as the raspberry as regards planting and general cultivation. The best varieties are Snyder, Agawam, Dorchester, and Early Harvest. Dewberries are being grown extensively in some parts of the country and bid fair to become popular garden berries. The best varieties are Lucretia and Windom.

Currants and gooseberries are chiefly grown in the north and are more important as cooked fruits than fresh. The large amount of currant jelly, gooseberry jam and other products made from these fruits will always keep them in demand, and the ease with which they are grown will make them profitable.

The currant is propagated by layers and cuttings, the latter method being most common. The ripened wood is cut in the fall into pieces six to eight inches long and is stored in a dry sandy cellar during the winter. In the spring these cuttings are placed in a bed out of doors and are well watered and mulched until they root. They are then planted in rows and treated as any nursery stock. The currant does well on any good garden soil, and one advantage of it is that it can be planted in a young pear or apple orchard, thus enabling the owner to get some returns from his land before the pears or apples come into bearing.

Set currant bushes at least four feet apart in the rows and the rows six feet apart, and apply plenty of manure at the time of planting. The currant produces best on two and three-year-old wood and all older wood should be removed. A satisfactory winter protection is to bank up a foot of soil about the base of the bushes. The best varieties are Fay's Prolific, Cherry, and Wilder, for red, and White Grape and White Imperial, for white. Black currants are little used here except in ornamental planting, but Black Naples is sometimes grown. The fruit is credited with some medicinal properties. The common enemy of both the currant and gooseberry is the currant worm. This must be carefully guarded against or the tender leaves will be destroyed in a few hours. Spray the bushes with a solution of Paris green, or arsenate of lead, or dust them with hellebore, and look out for a second crop of worms.

The gooseberry is not a popular fruit in America, but in England it is highly prized and grows to a very large size. The only demand for the gooseberry here is as a green fruit, and yet there is not a

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more delicious berry when ripe than some of the English and American varieties. The gooseberry is propagated by layers and cuttings, the former method being the better. Cultural methods are very much the same as for the currant. Mildew is the greatest enemy of the gooseberry but the careful selection of varieties will tend to reduce this evil. The best varieties are, American: Downing, Houghton, and Red Jacket; English: Chautauqua, Industry, and Columbus.

The cranberry, which I will not attempt to discuss in detail, is a very important crop in Massachusetts. Some idea of the amount of this fruit marketed here can be obtained from the following figures. In 1875 the crop in Massachusetts was estimated at 110,184 bushels, valued at $288,113; in 1885, 315,387 bushels, valued at $788,467. So if the crop has more than doubled in the ten years between 1875 and 1885, it must certainly be valued at over one million dollars at present. A few other statistics may be of interest, but as these refer to the years 1875 and 1885 they are perhaps of not as much value as more recent ones.

	1875		1885	
	Bushels.	Value.	Bushels.	Value.
The Strawberry	1,156,801	$214,940	3,929,497 qts.	$406,859
Currant	146,558	10,605	318,588	28,631
Blackberry	There was no report in 1875.		382,163	38,624
Red Raspberries			335,694	32,841

The spraying of all small fruits will be a necessity in a few years, if indeed it is not now. The ravages of insect pests, of fungous growths, mildew and blight, can only be successfully held in check by constant spraying, and the sooner growers come to realize this the less we shall hear of failures with small fruits.

The profitable part of small fruit culture is not entirely in the dollars and cents which may be derived from it, but rather in the experience, the out-of-door life, the closer touch with nature, and above all in the unlimited amount of keen enjoyment and entire satisfaction one realizes in the production of delicious and beautiful fruit.

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As Mr. J. F. C. Hyde, who did much for fruit culture, said in an address before the Massachusetts Board of Agriculture in 1868, "Then cultivate fruit; plant for yourselves; plant for your children; plant for your neighbor away off in distant cities; plant for the stranger that may come among you; plant for all and let all enjoy earth's richest fruits without stint or measure."

Mr. Wheeler stated, in concluding his remarks, that he had endeavored to keep in mind the needs of both amateur and professional growers, although it was difficult to apply the same methods to both classes of growers.

Lysander S. Richards of Marshfield said he could not let the omission of the Marshall strawberry from the list of the best ten commercial varieties go by without noticing it. It ranks high in Marshfield where it was first brought out by Marshall Ewell. He noticed the Brandywine in the list of the best ten, but he considered it one of the poorest and had discarded it. Many seem to have bad luck with raspberries from winter killing. He did not lay down his plants and rarely suffered from this cause, but his location on the South Shore may be the reason for it. He considered the Cuthbert as the most hardy and popular. He recommended keeping a flock of hens in the raspberry patch, for where they went the vines were more luxuriant and the berries larger.

Mr. Wheeler stated in regard to the Marshall strawberry that it bloomed too early and the buds were liable to be injured by the frost. He had no fault to find with the quality of the fruit. The reason it did so well in Marshfield was that it was much warmer there than in towns north and west of Boston. In answer to a question he said that he did not advise the cultivation of strawberries under currant bushes.

Samuel H. Warren said that he had no fault to find with the Marshall fruit but it was not a profitable berry to grow; you do not get much of a crop. You will always find that a variety does best where it originated, for there are found the conditions best suited for it. He preferred setting out plants in the fall, thereby gaining four to ten weeks' growth.

William N. Craig quite agreed with the plan of setting out strawberries in the fall, thereby getting a crop in ten months. He said

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that he preferred cultivation in hills as the berries were of better quality than those grown by the matted system. The Marshall does not do as well as some other varieties, but it is splendid for pot culture. The Senator Dunlap does better.

Raspberries should be protected during the winter by covering with any kind of coarse litter. He thought the Cuthbert the best variety, but the Columbian was also good. Gooseberries do not appear to be very popular in America. The skins are too thin and do not stand our hot sun. Of varieties, the Industry and Columbus do best. In currants, if he could plant only one variety it would be La Versaillaise. Black currants are not as popular here as in Europe where they bring high prices. The taste for them has to be acquired but it improves on acquaintance.

He noticed that Mr. Wheeler had not mentioned the strawberry-raspberry which is often shown at our exhibitions. It has some uses as an ornamental shrub but is hard to keep from spreading overmuch, and the fruit, although handsome to look upon, is worthless. Mr. Craig thought small fruit culture was a minor factor in New England and must remain so.

Mr. Richards condemned the system of fall planting of strawberries; he had never had any success with that method. It was the last thing he should think of, setting out plants in the fall.

Mr. Wheeler recommended spring planting for commercial growers and fall planting for amateurs.

John Ward remarked that the Marshall cannot be grown around here at a profit; one gets a few good berries but no large crop. It is an uncertain berry and in three years out of four will fail. The Sample would produce four times as much. He advised young, strong plants for fall planting.

Mr. Warren said that the fall planting of strawberries was not very well understood. He practised fall planting for he got a better established bed for the following season. For amateurs he would advise setting out pot-grown plants in August. The demand for pot-grown plants had increased enormously in recent years. The plants should be taken from beds which had never fruited; and it was a mistake to take plants from an old bed.

Mr. Wheeler said that the subject of the forcing of small fruits had not been introduced but raspberries could be fruited under

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glass. The principal trouble was in pollenization which had to be done by hand.

Joseph S. Chase said that the best gooseberry was the Triumph. He had grown all kinds and had discarded all but this. He considered it the best variety grown in this country.

Mr. Wheeler said that the Triumph gooseberry was more adapted for commercial growers than for amateurs. He asked Mr. Chase how he got rid of mildew.

Mr. Chase replied that he cut it off and burned it.

Mr. Craig stated that some doubt seemed to be expressed as to the value of fall planting of strawberries for small growers. He advised planting in July and August and the loss would be a very small percentage. A neighbor of his set out five thousand plants last May and only five hundred lived, which showed the folly of spring planting.

Mr. Wheeler spoke of the custom of growing strawberries in a barrel, and mentioned a report of twenty-five plants thus grown which produced forty quarts. A whiskey barrel was used with stones in the bottom for drainage and a drainpipe in the center. Holes two and a quarter inches in diameter were bored in the sides in which the plants were set out. They were frequently given liquid manure and protected in the early spring.

Mr. Warren inquired if Mr. Wheeler had ever tried this experiment.

Mr. Wheeler replied that he had not.

Mr. Warren said that he had tried it without success and would not advise it, but his lack of success may have been on account of his not getting the right brand of whiskey barrel. He said such experiments resulted in a failure ninety-nine times out of a hundred.

Mr. Craig remarked that one great trouble in barrel culture was in not getting the soil sufficiently firm all around the barrel. He said that kerosene oil barrels, washed out, were just as good as whiskey barrels for this purpose.

George F. Wheeler said that the average person must use potted strawberry plants, and that fall planting should be recommended.

An inquiry was made concerning the Mead and Commonwealth strawberries which Mr. Wheeler answered by stating that the Mead

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was rather a soft berry, but he was experimenting with it, and that the Commonwealth was not sufficiently productive and he would not advise planting it.

Mr. Warren said that the Commonwealth strawberry originated at Beverly near salt water, and where the Marshall could be grown the Commonwealth would succeed equally as well. He could get no crop from either in his locality (Weston, Mass.).

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TRANSACTIONS

OF THE

MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1906

PART II

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND SEVEN

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society

FOR THE YEAR 1906

PART II

BOSTON
PUBLISHED BY THE SOCIETY
NINETEEN HUNDRED AND SEVEN

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MASSACHUSETTS HORTICULTURAL SOCIETY

1906

The Transactions of the Society are issued annually in two parts under the direction of the Committee on Lectures and Publications.

Communications relating to the objects of the Society, its publications, exhibitions, and membership, may be addressed to William P. Rich, Secretary, Horticultural Hall, No. 300 Massachusetts Avenue, Boston, Massachusetts.

J. WOODWARD MANNING, *Chairman*	*Committee on Lectures and Publications.*
JAMES H. BOWDITCH	
JOHN A. PETTIGREW	
EDWARD B. WILDER	
E. W. WOOD	

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ANNUAL REPORTS FOR THE YEAR 1906.

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A GROUP OF CHRYSANTHEMUMS 1906

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1906. PART II.

REPORT OF THE BOARD OF TRUSTEES FOR THE YEAR 1906.

Four meetings of the Board of Trustees of the Massachusetts Horticultural Society have been held during the year 1906 with an average attendance of ten members.

A condensed statement of the business transacted at these meetings is herewith respectfully presented to the Society.

January 6. An appropriation of $400.00, in addition to the income of the French and Farlow Funds, was voted for library purposes for the year 1906; and $250.00 was voted to the Committee on Prizes and Exhibitions for the arrangement of the exhibitions of the Society during the current year.

On motion of Mr. Manning the following vote was passed:

Voted:— That the Trustees of the Massachusetts Horticultural Society hereby approve of the appropriation of a sum not to exceed $25,000.00 from the unexpended balance of the sum authorized by Chapter 381 of the Acts of the year 1905 to be expended for suppressing the gypsy and brown-tail moths, to employ the Hon. Ellwood Cooper of Santa Barbara, California, to provide a permanent remedy for said pests by the introduction of parasites or by other natural means, subject to the approval of the Department of Agriculture, under a guaranty which shall be approved by the Governor of the Commonwealth.

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That the Secretary be instructed to send a copy of this vote to the Superintendent appointed under said Act for suppressing the gypsy and brown-tail moths.

The following named persons having become eligible in accordance with the requirement of the By-laws were elected to membership in the Society:

Herman L. Winter of Somerville, proposed by A. F. Estabrook.
Edwin D. Hauthaway of Sharon, proposed by A. F. Estabrook.
Miss Louise Howe of Brookline, proposed by Charles H. Stearns.
William E. Nickerson of Cambridge, proposed by Wm. J. Stewart.
George H. Maxwell of Newton, proposed by Henry S. Adams.

April 21. A communication from Prof. A. H. Kirkland, Superintendent of the Commission for the Suppression of the Gypsy and Brown-tail Moths, was read, acknowledging the receipt of the vote of the Board, passed January 6. He assured the Society that any proposition which promised to be of help in the work here would be investigated, and its suggestions and plans would have his careful consideration.

A communication from Wm. J. Stewart, Secretary of the American Rose Society, was read also, expressing sincere thanks for the courtesies extended to his society during the exhibition at Horticultural Hall, March 23.

Mr. Farquhar, Chairman of the Committee on Prizes and Exhibitions, to which was referred the arrangement of the details of the Schedule for 1907, reported as follows:

That the Committee on Fruits will accept the best features of the proposed new schedule with modifications in favor of small exhibitors.

That the Committee on Plants and Flowers feels that the changes proposed are too sweeping and that the schedule as it stands is impracticable; but it is willing to incorporate certain features of it on the lines of the 1906 schedule.

That the Committee on Vegetables disapproves of the plan as it would discard nearly all small exhibitors.

Mr. Elliott said that the proposed new schedule, as far as roses

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were concerned would, if adopted, eliminate the commercial grower, and he thought this class of exhibitors should be given an opportunity to exhibit its productions.

Mr. Manning said that the proposed schedule practically wipes out the commercial man, and if changes are to be made they should be in the line of improvement without endangering the interests of this class to which he himself belonged.

Mr. Farquhar replied that the Society in recent years had done everything possible to draw in the commercial element. It had invited the various trade societies to hold their annual conventions in our halls and had endeavored to extend to them all possible encouragement. He disclaimed any intention in the new schedule of discriminating against this class of exhibitors.

Prof. Sargent stated that the report of the Committee on Prizes and Exhibitions did not appear to be in proper shape for action, and he moved, and it was voted to refer the report back to the committee for further consideration, and to report at its convenience at a future meeting of the Board.

Prof. Sargent referred to his recent visit to one of the fortnightly exhibitions of the Royal Horticultural Society in London. These exhibitions are held from one to five o'clock with an admission fee of fifty cents. Although no money prizes whatever were offered, a splendid exhibit of roses, hippeastrums, and orchids was produced. The awards made were medals and certificates.

The following named persons were elected to membership in the Society:

Albert C. Burrage of Boston, proposed by Charles H. Watson.

Mrs. Leonard P. Kinnicutt of Worcester, proposed by George E. Francis.

Vincent Buitta of Newton Upper Falls, proposed by C. E. Richardson.

Mrs. Isabelle Ladd Cutting of Lexington, proposed by Geo. W. Jameson.

Miss Catherine A. Codman of Dedham, proposed by J. K. M. L. Farquhar.

Mrs. Charles F. Cutler of Boston, proposed by Wm. H. Bowker.

Charles S. Strout of Biddeford, Maine, proposed by C. E. Richardson.

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Mrs. Margaret Woodward of Worcester, proposed by George E. Francis.

Eliab Parker of Roxbury, proposed by C. E. Richardson.

John McKenzie of Chestnut Hill, proposed by J. K. M. L. Farquhar.

On motion of Prof. Sargent it was voted to recommend to the Society at its annual meeting the election of the following named persons to corresponding membership:

Dr. Henry L. Ridley, Director Botanic Garden, Singapore.
Lieut. Col. David Prain, Director Royal Gardens, Kew, England.
Senor Don Salvador Izquierdo, Santiago, Chile.
Miss E. Willmott, Warley Place, Essex, England.

August 4. A communication was received from James Wheeler offering his resignation as a member of the Plant and Flower Committee. It was voted to accept the resignation of Mr. Wheeler and T. D. Hatfield was elected in his place for the remainder of the year.

It was voted also, on motion of Mr. Craig, that the Secretary be requested to express the thanks of the Society to James Wheeler for the valued service he has rendered as a member of the Committee on Plants and Flowers.

Mr. Hill reported that legal proceedings had been entered against the contractors of the stonework of the building on account of the defective material used.

It was voted that the Committee on Prizes and Exhibitions be authorized to issue a schedule for the exhibitions of March and May, 1907, and that the consideration of the rest of the schedule be referred to a future time; the total amount to be awarded not to exceed the appropriation already made.

On motion of Mr. Craig it was voted that the appropriation for prizes and gratuities for the year 1907 be distributed pro rata among the several committees on the basis of the 1905 schedule.

The following appropriations were voted:

For alterations and additions to the plumbing work in the basement of the building in accordance with the estimate of Pierce & Cox, $456.00.

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For repairs on the roof of the building in accordance with estimates presented by the architects, Wheelwright & Haven, $880.00, and the architects' commission of ten per cent.

For pamphlet boxes for the arrangement of the collection of horticultural trade catalogues in the library, a sum not exceeding $75.00.

Mrs. William D. Mandell of Boston, proposed by Wm. Tracy Eustis, was elected a member of the Society.

December 8. It was voted that the State Board of Agriculture of Massachusetts be invited to hold its winter meeting in December, 1907, in the halls of this Society.

A communication was received from N. B. White of Norwood suggesting that the Massachusetts Horticultural Society take some action in regard to the bill before Congress granting to originators of new plants the right to obtain patent for same. On motion of Mr. Manning it was voted that the communication of Mr. White be laid on the table.

Communications were presented from Edwin Jenkins of Lenox, Edwin L. Lewis and Walter Warburton of Taunton, containing protests against some recent awards made by the Committee on Vegetables, and, on motion of Mr. Hill, it was voted that a special committee of three be appointed by the President to consider the matter and report to the Board as early as possible. It was further voted that this special committee be authorized to employ such clerical assistance as may be required at an expense not exceeding $100.00. The President appointed the committee as follows: William C. Endicott, Chairman, George E. Cabot, and Walter C. Baylies.

Mr. Hill moved that a rule be inserted in future schedules providing for the disposition of such protests and offered the following rule which was adopted:

Whenever any exhibitor shall consider himself personally aggrieved by any award of a prize he may file a written protest with the Secretary immediately after such award. The Secretary shall forthwith transmit such protest to the committee that made the protested award and such committee shall thereupon reconsider such award. No protests shall be considered unless made as provided in this rule.

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On motion of Mr. Craig a special appropriation of $10.00 was voted on account of expenses of the annual meeting; and, on motion of Mr. Manning, an appropriation not exceeding $300.00, including the income of the John Lewis Russell Fund, was voted for the Committee on Lectures and Publications for the year 1907.

Mr. Farquhar, for the Committee on Prizes and Exhibitions, reported that the schedule for 1907 had been prepared and moved and it was voted to proceed with its publication.

It was voted also to appropriate $250.00 for the expenses and arrangement of the exhibitions of the ensuing year.

On motion of Prof. Sargent it was voted that the Gardeners' and Florists' Club of Boston be invited to use one of the halls of the Society, free of expense for lighting and service, for its class in landscape gardening during the present winter, and that an appropriation not to exceed $50.00 be allowed for additional lighting apparatus.

It was voted also, on motion of Prof. Sargent, that a committee of three be appointed to investigate and report on the administration of the affairs of the Society's building. The President appointed on this committee Messrs. C. S. Sargent, H. P. Walcott, and A. F. Estabrook.

A committee of four consisting of Messrs. Estabrook, Manning, Farquhar, and Sargent was appointed to bring in a list of nominations for the various committees for the year 1907. This committee presented the following list which was unanimously adopted:

Committees of the Massachusetts Horticultural Society for the Year 1907.

Finance:— Walter Hunnewell, Chairman, A. F. Estabrook, Stephen M. Weld.

Library:— C. S. Sargent, Chairman, T. O. Fuller, Samuel Henshaw, Charles W. Jenks, Henry P. Walcott.

Lectures and Publications:— Wm. P. Rich, Chairman, J. Woodward Manning, Walter S. Parker, John A. Pettigrew, Edward B. Wilder.

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Prizes and Exhibitions:— John K. M. L. Farquhar, Chairman, Wm. N. Craig, Arthur H. Fewkes, Isaac H. Locke, Wm. H. Spooner, Wilfrid Wheeler.

Plants and Flowers:— Arthur H. Fewkes, Chairman, Robert Cameron, Wm. N. Craig, T. D. Hatfield, William Nicholson.

Fruits:— Wilfrid Wheeler, Chairman, Charles F. Curtis, J. Willard Hill.

Vegetables:— Isaac H. Locke, Chairman, Duncan Finlayson, Josiah B. Shurtleff, Jr.

Gardens:— Charles W. Parker, Chairman, Oakes Ames, George Barker, Wm. N. Craig, Wm. H. Elliott, A. H. Fewkes, J. A. Pettigrew, W. W. Rawson, W. P. Rich, H. P. Walcott, S. M. Weld.

Children's Gardens:— Henry S. Adams, Chairman, Edward R. Cogswell, Jr., Harry S. Rand, W. E. C. Rich, Wm. P. Rich.

The following named persons were elected to membership in the Society:

William Sim of Cliftondale, proposed by Aaron Low.
Herbert A. Clark of Belmont, proposed by A. F. Estabrook.
Harry F. Hall of Waban, proposed by W. W. Rawson.
F. Wm. Rane of Boston, proposed by W. W. Rawson.
George W. Tufts of Rockport, proposed by C. E. Richardson.
Edward W. Sanborn of Boston, proposed by F. S. Davis.
E. Allan Peirce of Waltham, proposed by J. K. M. L. Farquhar.
George E. Adams of Kingston, R. I., proposed by W. P. Rich.
John P. R. Sherman of Newton, proposed by A. F. Estabrook.

WILLIAM P. RICH,
Secretary.

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REPORT OF THE COMMITTEE ON PRIZES AND EXHIBITIONS FOR THE YEAR 1906.

BY JOHN K. M. L. FARQUHAR, CHAIRMAN.

Your Committee on Prizes and Exhibitions is pleased to be able to report favorably on the work of the past year. The exhibitions, with perhaps one exception, have shown improvement over those of the preceding year.

Invitations extended to the National Carnation, Rose, and Peony Societies in Boston, in conjunction with our own, were heartily responded to. Several exhibitors of carnations and roses came from Illinois and other western states, and one peony exhibitor brought a collection of blooms from Nebraska.

The Carnation Exhibition held January 24th and 25th, and the Rose Exhibition on March 23rd, 24th, and 25th have been regarded as occasions marking unprecedented advancement in the development of these two important floricultural subjects; an advancement due almost entirely to the florists of this country in their efforts to obtain better market flowers.

The most notable exhibit of the year was undoubtedly the new rose, Richmond, which already seems to outclass the famous American Beauty.

At the March Exhibition Mr. Thomas Roland of Nahant exhibited an exceptionally fine group of florists' decorative foliage and flowering plants. The plants were well grown and tastefully grouped.

The exhibition of July 7th was remarkable for a splendid display of hardy, herbaceous plants, indicating a growing interest in this desirable class. A magnificent display of *Delphinium hybridum* from Brookline, Mass., was probably the finest ever brought before the society. At this exhibition, also, Mr. Robert Cameron, Superintendent of the Harvard Botanic Garden, made a grand display of stove and greenhouse plants.

The Fruit and Vegetable Exhibition in October brought out a

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list of entries, many of them by new exhibitors from distant places.

There has been a falling off in the exhibits of large chrysanthemum plants, due, doubtless, to the great expense and amount of labor necessary to produce the magnificent specimens which for many years have distinguished the November Exhibitions of the Society.

Improvement has been made in the general arrangement of the exhibitions which has met the commendation of visitors. This improvement is largely due to the labors of Mr. Robert Cameron of Cambridge and Mr. James Wheeler of Brookline, and also to the ready coöperation of the exhibitors to this end.

The receipts at the two pay exhibitions, namely, the Spring and Chrysanthemum Shows, amounted to $2019.50, an increase of $110.75 over last year.

JOHN K. M. L. FARQUHAR
WILLIAM N. CRAIG
ARTHUR H. FEWKES
WARREN W. RAWSON
WILLIAM H. SPOONER
WILFRID WHEELER

Committee on Prizes and Exhibitions.

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REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS FOR THE YEAR 1906.

BY ARTHUR H. FEWKES, CHAIRMAN.

A review of the exhibitions of the year shows them to have been of unusual interest, owing largely to the meeting with us of three national associations: the American Carnation Society in January, the American Rose Society in March, and the American Peony Society in June.

It seems to us that the policy of encouraging such societies to meet here and to hold their exhibitions in conjunction with our own is a commendable one and should be adopted as often as circumstances will permit, for it brings in many exhibitors and exhibits which we would get in no other way.

It not only increases the size of our exhibitions but creates a wider public interest in them as well.

We find there has been a considerable increase in the number of awards over the preceding year and a slight increase in the number of exhibitors. There were six hundred and seventy-three awards of all kinds in 1905 and seven hundred and forty in 1906, an increase of sixty-seven; and there were one hundred and forty-three persons and firms who made exhibits at various times during 1905 and one hundred and fifty during 1906, an increase of seven.

But while there has been an increase in both exhibits and exhibitors the actual money expended, including all special prizes, was seventeen dollars and seventy-five cents less than the preceding year.

The improvement may have been due mostly to the association with us of the different national societies, but we feel that there has been a genuine revival of interest in many lines. It is true that in the classes mentioned last year as falling behind there has been no appreciable improvement, but in the classes which appeal most strongly to the unprofessional grower there has been considerable improvement.

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The first exhibit of the year was made January 13: a Japanese form of *Azalea Indica*, (*A. Indica*, var. *amoena*). It was exhibited under the name of *Azalea Hinodigero* by J. Woodward Manning and awarded Honorable Mention. This plant is quite interesting as it is one of the so-called hardy varieties of *Azalea Indica*. The variety is much like the old one under the same name but differs in not having a hose-in-hose corolla, and in color, which is a much lighter shade. If it should prove hardy in this section it will become a most valuable shrub, but as the old *amoena* will live over winter only under the most favorable conditions we are inclined to think the same may be said of this variety.

The next exhibition was held on January 24 and 25. It was kept open two days on account of the meeting of the American Carnation Society and proved to be one of the most beautiful exhibitions ever held here, as well as the finest show ever held by the American Carnation Society.

The regular prizes offered by the Massachusetts Horticultural Society were quite well competed for notwithstanding the greater attractions offered by the Carnation Society.

The miscellaneous exhibits, not in competition, were quite numerous and several special awards were made.

Oakes Ames was awarded a Silver Medal for a collection of orchids which though not remarkable for their gorgeous beauty were, however, very interesting from a botanical point of view and served to illustrate the great diversity of form found in this great family.

Alexander Ogg was awarded a First Class Certificate for seedling Amaryllis plants which, though not out of the ordinary as varieties, showed great precocity in the matter of reaching a blooming size, they having bloomed in about eighteen months from the seed; a quite remarkable thing in this class of plants.

The Lowthorpe School of Horticulture exhibited several plants of *Mahernia odorata* which showed much skill in cultivation and a Cultural Certificate was awarded for them.

J. E. Rothwell showed an interesting seedling orchid, Lælio-cattleya Gen. French, a cross between *Cattleya trianæ* and *Lælia cinnabarina*. The cross was made in February 1900, the seed sown in June 1901, and flowered in January 1906. It was a beautiful orchid and was awarded a Silver Medal.

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H. A. Jahn's seedling carnation No. 49, a promising light pink, was awarded Honorable Mention, and Norris F. Comley was given the same award for a seedling Acacia with habit like *A. heterophylla.*

The Spring Show, March 23, 24, and 25, was one long to be remembered, for besides our regular exhibition the American Rose Society met in Boston and held its exhibition in connection with our regular March show, making the most beautiful display of roses ever held here and, as many have said, the finest exhibition of roses ever staged in any country.

The roses exhibited were mostly of the Tea and Hybrid Tea varieties such as are grown for commercial purposes.

It is interesting to note the advance made in the number of varieties available for this purpose. Where a few years ago the Bride and Bridesmaid, American Beauty and Liberty were about all the varieties obtainable, we now have in addition such varieties as Kaiserine Augusta Victoria, Mrs. Pierpont Morgan, Souvenir du Pres. Carnot, Mrs. Oliver Ames, Wellesley, Killarney, and Richmond. The last, the greatest advance in crimson roses that has been made in many years, was shown in its greatest perfection.

In connection with the above list the varieties Bon Silene and Safrano should be mentioned so as to record the fact that these old-time favorites are still grown for market and exhibition along with their more pretentious rivals. There was a time, during the seventies and early eighties, when these two varieties were practically all the kinds that were grown for market purposes. A few Lamarques and Gloire de Dijons were seen, but Bon Silene and Safrano seemed to be what fashion demanded until the advent of the glorious Mareschal Niel which seemed to start a demand for larger flowers and more variety in form and color, resulting in the planting and testing of a great many varieties. Among these, one of the older French varieties, the Catherine Mermet, was found to be the most in demand and the most profitable to grow. It was planted for a number of years to the exclusion of almost every other variety until the appearance of its white sport, the Bride, and the later sport, the Bridesmaid. These two reigned supreme for a considerable period driving the Bon Silene and Safrano to the wall, but Dame Fashion seems to be getting into a more sane mood and is recognizing beauty in many other varieties,

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and questions not whether they are old or new, only demanding that they be obtainable in unlimited quantities and of fine quality.

The prizes for cut roses offered by the Massachusetts Horticultural Society were considerably overshadowed by those offered by the Rose Society and received but little attention from competitors, but the carnation display was very fine and the prizes for plants in pots were quite freely competed for; the Acacias and Rambler roses making the most striking feature of the show in the plant department.

A considerable number of special awards were made, the most important of which was the award of a Silver Gilt Medal to Henry H. Barrows for *Nephrolepis Whitmani*, another sport from the Pierson fern, and the handsomest of all. In appearance it is similar to the variety *elegantissima* but of better form and still more elegant habit.

M. H. Walsh made a fine display of Rambler roses in pots and tubs. They were nearly all varieties of his own originating, several of them having received special awards at previous exhibitions. One of his newest ones, Delight, was awarded a First Class Certificate. It is a single flower of a bright reddish-pink color with white center; a strong grower and remarkably free bloomer.

A Silver Medal was awarded for a very fine Cattleya, shown by E. O. Orpet: *Cattleya Thayeriana superba.* It is a magnificent flower and a great improvement on the type.

A Silver Medal was also awarded to Mrs. B. B. Tuttle for the beautiful pure white *Dendrobium superbum Dearei.* This was the first time the variety was ever shown in Boston in good form and it attracted much attention.

Another orchid, which received a special award, was exhibited by Lager & Hurrell. It was a superior type of *Cattleya Schroderæ*, a remarkably fine form and received a First Class Certificate.

E. O. Orpet was awarded Honorable Mention for *Læliocattleya Coronis*, (*Lælia cinnabarina* × *Cattleya labiata*).

Adiantum Edgari, exhibited by W. W. Edgar, was awarded Honorable Mention. It is a promising fern of the *cuneatum* type.

Asparagus Crawshawii, exhibited by James Crawshaw, was awarded Honorable Mention. It is a graceful vine, similar in habit to *Asparagus plumosus*, but the branches are less regularly arranged and the green is different in shade, having a bluish tinge.

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Anthony C. Zvolanek exhibited a collection of sweet peas, all varieties of his own originating, and all suitable for winter flowering. Mr. Zvolanek is making a specialty of these early-flowering varieties and deserves great credit for his efforts along this line. He is giving us kinds in a great variety of colors suitable for winter flowering. By careful selection there is no doubt that these winter sorts will soon be obtainable in as many and as beautiful shades as can be found among the later-flowering kinds. A First Class Certificate was awarded him for the collection.

Two bright red seedling carnations were exhibited for special honors: Gov. Guild by Peirce Brothers, and Beacon by Peter Fisher. They were both awarded Honorable Mention and are both promising varieties, the former being slightly lighter in shade than the latter.

Mr. Fisher was also awarded Honorable Mention for his seedling Carnation No. 500.

A fine display of *Mahernia odorata*, for which a cultural Bronze Medal was awarded, was made by Thomas Roland.

The plants were trained in a variety of forms showing that much time and skill had been spent in their cultivation.

Honorable Mention was awarded Mrs. J. Montgomery Sears for a collection of seedling Amaryllis; they were of large size and fine in form and color.

The May Exhibition, May 5, was a better show than we have had at this season for many years. The regular prizes, except those for Zonale and Ivy Pelargoniums, were well competed for and the miscellaneous displays were numerous and interesting. The most prominent among these were the displays from the Harvard Botanic Garden and from the Langwater Gardens. The former comprised fine displays of spring flowers, narcissi, and pansies. The latter was a beautiful and instructive display of narcissi, comprising over forty varieties from the open ground. Notably fine among these were Mad. de Graaff, Queen of Spain, Leedsii Duchess of Westminster, Bicolor Victoria, Glory of Leyden, Peter R. Barr, Incomparabilis Figaro and Beauty.

A Silver Medal was awarded for this display.

Honorable Mention was awarded W. W. Rawson for a new class of narcissi, called *Narcissus Poetaz*, hybrids between *N.*

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polyanthus and *N. poeticus*. The varieties shown were Louise, Triomphe, and Alsace. If the class proves hardy they will be valuable additions to the list of garden bulbs.

A prominent feature of the show was a large vase of *Lilium candidum*, a lily which was once grown in almost every garden but late years has nearly disappeared, owing to a disease which has attacked it, making its cultivation most difficult. That it is possible to grow it in all its former glory was amply proven by this vase of magnificent blooms grown by Wm. N. Craig of the Langwater Gardens. A First Class Certificate was awarded him for superior cultivation of this flower.

The Rhododendron Show, June 2, was a fairly good exhibition as a whole, but was rather early for rhododendrons. Hardy azaleas were at their prime and were well shown, and the displays of hardy ornamental trees and shrubs were good, but in other classes the exhibits were meager.

The miscellaneous displays were quite numerous and included many things of interest.

J. E. Rothwell was awarded First Class Certificates for *Lælio-cattleya Acis* and *Lælio cattleya marguerite*. The first is the result of a cross between *Lælia tenebrosa* and *Cattleya Mendelii*. It is a fine bold flower with rosy-white petals and sepals, and deep maroon lip with light yellow blotches.

The other resulted from *Lælia purpurata* crossed with *Cattleya Mossiæ* var. *vestalis*. The sepals and petals are rosy-purple; the lip crimson with white border and deep yellow throat.

Honorable Mention was awarded T. C. Thurlow for a new Viburnum exhibited under the name of *Viburnum Odama*. It is a promising shrub of bold habit.

The Peony Exhibition was held on June 15, 16 and was a very successful one. The annual meeting of the American Peony Society was held here at this time and their exhibition was held in conjunction with our own, resulting in the finest exhibition of peonies ever held in this country. There were several exhibits from out the state but by far the greater part of the displays were from local growers who felt it incumbent upon them to make the exhibition as successful as possible and to keep up the reputation of Boston as a peony center.

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Although there was good competition in many of the classes a very large part of the exhibition was made up of displays not in competition. Among these were many new varieties, both imported and native seedlings.

The imported varieties which received special awards were Therése and Aurore shown by E. J. Shaylor. The former is a large full flower, loosely built, with long and quite broad petals of a delicate blush color with center nearly white. This received a First Class Certificate.

The other variety, Aurore, received Honorable Mention. It is a very large and showy, semi-double bloom, flesh white in color.

A large number of seedlings were shown by George Hollis and T. C. Thurlow.

The variety shown by Mr. Hollis under the name of Loveliness and awarded a First Class Certificate was the most distinct in his collection. It is a very large, full flower, with broad petals, of a rich rosy-pink color. It has a fine habit and strong stems.

The varieties Pride of Essex, Merrimac, and Gov. Guild were selected from Mr. Thurlow's collection as the most distinct and desirable. The first is a very large bloom with broad, oval petals, resembling somewhat a Nelumbium bloom. The color is nearly white with yellow stamens showing among the petals.

Merrimac is a large and full flower with long petals of a fine blush color, showing the yellow stamens intermixed. This variety received Honorable Mention as well as the variety Gov. Guild, a fine deep crimson with no trace of purple.

Other special awards were a Silver Medal to Wm. Miller for a collection of Eremuri. This was the finest display of these plants ever made here. It included the varieties *E. Himalaicus*, *E. Turkestanicus*, *E. Elwesianus*, *E. robustus*, and *E. robustus superbus*.

A First Class Certificate was awarded the Blue Hill Nurseries for the golden-leaved negundo, *Acer Negundo Odessianum*. The leaves are a bright yellow color and do not burn in the sun as many golden-leaved shrubs and trees unfortunately do.

They also received Honorable Mention for *Fagus sylvatica purpurea major*, or the broad-leaved purple beech. This is a fine tree with very broad deep purple leaves.

W. W. Rawson was awarded Honorable Mention for *Gladiolus*

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cardinalis Ackermanni, a handsome salmon colored variety, blotched with crimson on a blush ground.

Frederick J. Rea received Honorable Mention for *Anchusa Italica* var. Dropmore, a variety much larger and finer than the type.

The Blue Hill Nurseries put up a display of herbaceous flowers which was remarkable for the large numbers of species and varieties exibited, fine arrangement, and neatness of labeling. Attention should be called to the latter point as the specially printed cards used made the collection a very instructive one. A Silver Medal was awarded for this.

Wm. N. Craig brought from the Langwater Gardens a fine lot of *Miltonia vexillaria* which was so well grown that a Cultural Certificate was awarded him.

The Rose Exhibition was held June 22 and was better than we have had for several years. There was very good competition in several of the classes for hybrid perpetual roses, but on the whole was not what it should be and it would seem that less interest than such a popular flower deserves is being taken in their cultivation. Judging by the majority of flowers exhibited this conclusion forced itself upon us, for with few exceptions they gave evidence of ordinary care only. We believe with the same care given garden roses that was bestowed upon them some twenty years ago we could have flowers of as good quality and exhibits as fine as was then the rule.

There was a considerable number of displays not in competition most of which were meritorious, particularly the exhibits of *Campanula Medium* in pots from Mrs. John L. Gardner and Mrs. A. W. Blake; herbaceous plants from the Blue Hill Nurseries and Mt. Desert Nurseries; peonies from E. J. Shaylor, T. C. Thurlow, Dr. Charles S. Minot, and George Hollis; and the collection of early-flowering chrysanthemums from Walter Hunnewell.

Special Awards were made to George Hollis for seedling peony, Mrs. Julia Ward Howe, which received a First Class Certificate. It is a very large, full, rather flat flower, with broad petals of a fresh, rosy-pink color.

Walter Hunnewell was awarded Honorable Mention for the new Rambler rose Rubin. It is a very free variety, larger than Crim-

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son Rambler, deeper in color and very promising. He was also awarded a Bronze Medal for a collection of early-flowering chrysanthemums. These varieties are remarkable for their earliness as they were in full bloom thus early in the season and were all raised from cuttings taken at the usual time. As a flower for summer cutting they are quite valuable. The varieties shown were Robbie Burns, Goacher's Pink, Goacher's Crimson, Firelight, Marie Massie, White Marie Massie, Ryecroft Pink, Horace Martin, Mrs. Nonin, Emily Grunnewald, Ideal, and Ralph Curtis.

The exhibition on July 7, although a Saturday show, was the finest summer exhibition we have had for many years. With the exception of Pentstemons all the classes were well competed for and in addition there were many fine miscellaneous exhibits. Particularly interesting among these were the display of herbaceous plants from the Harvard Botanic Garden, filling eighty-four vases, and the display of the Farquhar rose made by J. W. Duncan from the Boston Park Department. The latter was a beautiful exhibit and well illustrated the great value of this as a free-flowering variety, when of sufficient age, as well as its remarkable growing abilities. The flowers exhibited were cut from plants grown as creepers in a large bed, and it is worthy of note that this variety is a great success when grown in this way.

Duncan Finlayson was given a Cultural Certificate for a finely grown *Dendrobium thyrsiflorum*, and Honorable Mention was awarded Mrs. Frederick Ayer for the new marguerite, Queen Alexandra, a variety with pure white ray petals and brownish-crimson disk, the latter often producing a succession of white ray petals thereby making a flower with an anemone-formed center.

On July 14 J. Tailby & Son were awarded Honorable Mention for a new hybrid Richardia, Mrs. Joseph Tailby. It is a cross between *R. albo-maculata* and *R. Elliottiana* and is apparently a strong grower, bearing a flower nearly as deep in color as *Elliottiana*.

The same award was also given them for *Lonicera tragophylla*, a species with large yellow flowers and glaucous, perfoliate leaves. The specimen exhibited was not of sufficient strength to allow of correct judgment of its value.

The Sweet Pea Show on July 21 was quite a successful one. There was a large and instructive display of sweet peas well shown and competed for.

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Besides the sweet peas there were a number of miscellaneous displays of interest, including a new Cypripedium, *C. Rolfei*, from J. E. Rothwell, for which he received a First Class Certificate. It is a cross between *bellatulum* and *Rothschildianum*. The sepals and petals are creamy white tinged green and marked with minute dots arranged in distinct lines. The lip is white, heavily shaded, mottled and spotted with pink. Dahlias made their first appearance for the season at this show and were shown each succeeding Saturday until the Chrysanthemum Show in November, at which there was quite a creditable display. Advancement in varieties along the line of earliness, and a remarkably mild season, made it possible to exhibit these flowers for so long a time.

The exhibition on August 4 was a very interesting one and included fine displays of perennial phloxes, annuals, and hardy herbaceous flowers. There were also many exhibits not in competition, all excellent in their way.

Lager & Hurrell exhibited the fine Vanda Miss Agnes Joachim, a white variety shaded lilac, with deeper colored lip finely spotted, and the throat shaded brownish yellow.

E. F. Dwyer & Son were awarded Honorable Mention for *Heuchera bryzoides*, a fine hardy, herbaceous plant, very useful for cutting.

A First Class Certificate was awarded the Blue Hill Nurseries for the double form of *Gypsophylla paniculata*. It is a unique plant and makes a useful one for cutting.

The exhibition on August 18 was another very successful one although but few prizes were offered. It was a delightful exhibition of summer garden flowers such as can be grown by any one who loves a garden. The displays of herbaceous phloxes and gladioli were particularly fine and dahlias were shown in large numbers.

The Blue Hill Nurseries showed the new hybrid Rugosa rose, Conrad F. Meyer, for which they were awarded Honorable Mention. It is a considerable advancement in this valuable new class and is a full double flower, bright pink in color and very sweet.

Honorable Mention was awarded a remarkable plant shown by Walter Hunnewell, *Senecio clivorum*, a new herbaceous plant from West China, of gigantic proportions. It is a fine bold plant

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for moist situations, with large yellow flowers and very large orbicular leaves.

On August 22 the committee visited the nursery of E. F. Dwyer & Son, Lynn, Massachusetts, to examine a clematis plant which appeared in the nursery, presumably from seed. Flowers from this vine have been shown at two different times previous to this at the Hall, but not in sufficient quantity to be fairly judged. It is a strong growing vine, with heavy foliage and axillary clusters of somewhat bell-shaped flowers which are white, delicately shaded lavender.

There was some question as to its identity, but the authorities at the Harvard Botanic Garden pronounced it to be *Clematis heracleifolia* var. *stans* form. It should make a valuable vine for trellis and pergola work and we considered it of sufficient merit to be generally grown; we therefore awarded it a First Class Certificate.

On September 1 the committee visited the Bay State Nurseries, North Abington, Massachusetts, to see a pure white seedling *Stokesia cyanea*. This is the first white variety of this plant on record. Unfortunately the only flower on the plant had faded, but there still remained enough of it to show that it was pure white and of sufficient promise to warrant the award of Honorable Mention. If the plant fulfills its promise it will be a valuable addition to the herbaceous plants and worthy of higher honors.

The Annual Exhibition, September 5, as a whole, was an excellent one, but in the classes for decorative plants the same apathy was noticeable among the growers as has been apparent for several years past, and the burden of the decorative displays fell upon the Harvard Botanic Garden, Mrs. John L. Gardner, A. F. Estabrook, and R. & J. Farquhar & Co. Specimen plants were contributed by a few others, but the fact becomes more apparent each year that the interest in this class of plants is waning.

On the other hand the interest in outdoor flowers and plants is increasing wonderfully and among these the dahlia is in the lead. The displays of this flower practically filled the lecture hall, although the prizes offered were comparatively few and small.

Among the miscellaneous displays there were several noteworthy plants which received special awards. The Blue Hill Nurseries

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showed *Lathyrus latifolius* Pink Gem and *Liatris pycnostachya superba*. Honorable mention was awarded the former which is a pretty shade of pink and a welcome addition to the perennial peas. The latter is a magnificent, strong growing variety of this fine plant and well worth the First Class Certificate which it received.

Among the tuberous begonias shown by H. H. Rogers were specimens of the new crested class, *grandiflora erecta cristata*. These were awarded Honorable Mention as they are distinct in form and make a pleasing variety in this class.

The aquatics shown by H. A. Dreer were as usual very interesting and were awarded a First Class Certificate. The Nelumbiums in his collection were particularly noticeable. He also exhibited several new foliage plants which were all awarded Honorable Mention and were as follows: *Adiantum scutum ramosum*, a variety approaching the well-known *Farleyense* in form; *Maranta Gouletii*, a variety with a center marking in the leaf resembling a silver feather; *Asparagus Duchenii*, a new species from Belgian Congo, in the way of *Asparagus Sprengeri* but of coarser growth; *Pteris Childsii*, a form of *Pteris serrulata* apparently, with very finely fringed edges and crested tips; *Adiantum macrophyllum album striatum*, a variety more curious than beautiful.

At the Annual Exhibition of Fruits and Vegetables, October 10, 11, there were several exhibits of flowers, mostly dahlias. The Blue Hill Nurseries made a display of the new *Aconitum Fisheri* for which a First Class Certificate was awarded. It is a very fine form, with deep blue flowers in compact, but much branched spikes. The leaves are very glossy, thick, and leathery. They were also awarded Honorable Mention for *Actaea Japonica*, a handsome, strong growing species.

Two seedling dahlias were shown by Joseph C. Forbes and awarded First Class Certificates. One, Ruth Forbes, a large and showy decorative variety of a bright mauve-pink color, and Newport, a cactus variety, bright rich crimson in color and with fine stem.

The Chrysanthemum Show, November 2, 3, 4, though weak in chrysanthemums was, nevertheless, a most successful fall exhibition. The prizes transferred from the Annual Exhibition proved a great help to it, in fact, the chrysanthemums formed only one feature of what is rapidly becoming a great fall floral festival.

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The competitors in the classes for large, trained chrysanthemum plants have almost entirely dropped out, so that it has become necessary to introduce other features to take their place and for this reason in part it was thought best to concentrate as much as possible the principal decorative features of what has heretofore been known as the Annual Exhibition, upon this November Show, as the September Show no longer attracts either the exhibitor or the public as it did some years ago.

This scheme of merging the two fall shows, as much as possible, into one, proved a decided success this season and made the November one a very interesting and profitable affair. In the classes for chrysanthemum blooms the quality has never been surpassed and as a matter of record we herewith give lists of the varieties which were included in the two collections which took first and second prizes respectively in the class for Twenty-five Specimen Blooms, as the varieties enumerated include the best of the kinds grown for exhibition purposes at the present time. The first prize was awarded to R. W. Paterson of Lenox, Mass., and the second to Peter B. Robb, of Whitinsville, Mass.

The varieties shown by Mr. Paterson were:

Mrs. J. E. Dunne
Leila Filkins
Mafeking Hero
Nellie Pockett
Mrs. J. A. Miller
C. J. Salter
Australie
Mrs. Wm. Knox
May Inglis
Mrs. Wm. Duckham
Merza
Mrs. Morton F. Plant
Donald McLeod
Mrs. Greenfield
Maynell
Ben Welles
Beatrice May
Mrs. Henry Partridge
Brighthurst
Mrs. George Heaume
Wm. Duckham
F. S. Vallis
Mlle. Marie Liger
Cheltoni
Mrs. George Mileham

Mr. Robb's varieties were:

Percy Plumridge
Col. D. Appleton
Ben Welles
Lord Salisbury
Nellie Pockett
Valerie Greenham
C. J. Salter
John Fraser
Merstham Red
Cheltoni
Mrs. Wm. Duckham
Gen. Hutton
Mad. Von Andre
Beatrice May
Wm. Duckham
J. H. Salisbury
W. R. Church
F. S. Vallis
W. A. Etherington
Mrs. C. J. Salter
Mrs. G. A. Miller
Mrs. Geo. Mileham
Merza
Lady Hopeturn
S. J. Wright

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An innovation was introduced at this show in the way of decorated dinner tables which proved quite an attraction. They were competed for by the retail florists of Boston and were judged by a committee of ladies of the Society.

As usual there were many displays not in competition; many of them fully as interesting as those that were.

Particularly so was the table of single-flowered chrysanthemums from Miss E. Jackson Clark of Pomfret, Connecticut, for which she received a Silver Medal. Her display filled an entire table the length of the hall and included about fifty varieties in all colors common to the flower. They were greatly admired and it seems probable that this class is destined to be in much demand in the future.

A First Class Certificate was awarded Chas. H. Totty for a white sport from the chrysanthemum Wm. Duckham with which it is identical except in color which is pure white. Louis Dupuy was awarded Honorable Mention for a new seedling chrysanthemum of bright cerese-pink color, without name, which makes a fine variety to grow as a commercial plant or for decorative purposes, a use for which it seems well adapted as the plants shown were very showy and effective by artificial light.

H. A. Jahn showed two varieties of carnations for which he received Honorable Mention; No. 1 a very free flowering white and No. 2 a rich crimson flower of considerable promise.

A vase of violets shown by William Sim was awarded Honorable Mention. The variety is a sport from Princess of Wales and seems to be an improvement on that variety.

Honorable Mention was awarded the Cobbet School of Lynn for a very creditable display of hardy, pompon chrysanthemums grown in the school yard.

The F. R. Pearson Co. showed still another sport from the Boston fern which was in the way of *elegantissima* but with curly pinnæ. Honorable Mention was awarded this.

Ficus altissima from the F. W. Fletcher Co. was awarded Honorable Mention. It is a strong growing plant with bold foliage much like *Ficus pandurata* but with the leaves veined with white.

The same award was given E. O. Orpet for a display of seedling Cattleyas and Laelias. Several handsome and interesting varieties were included in the collection.

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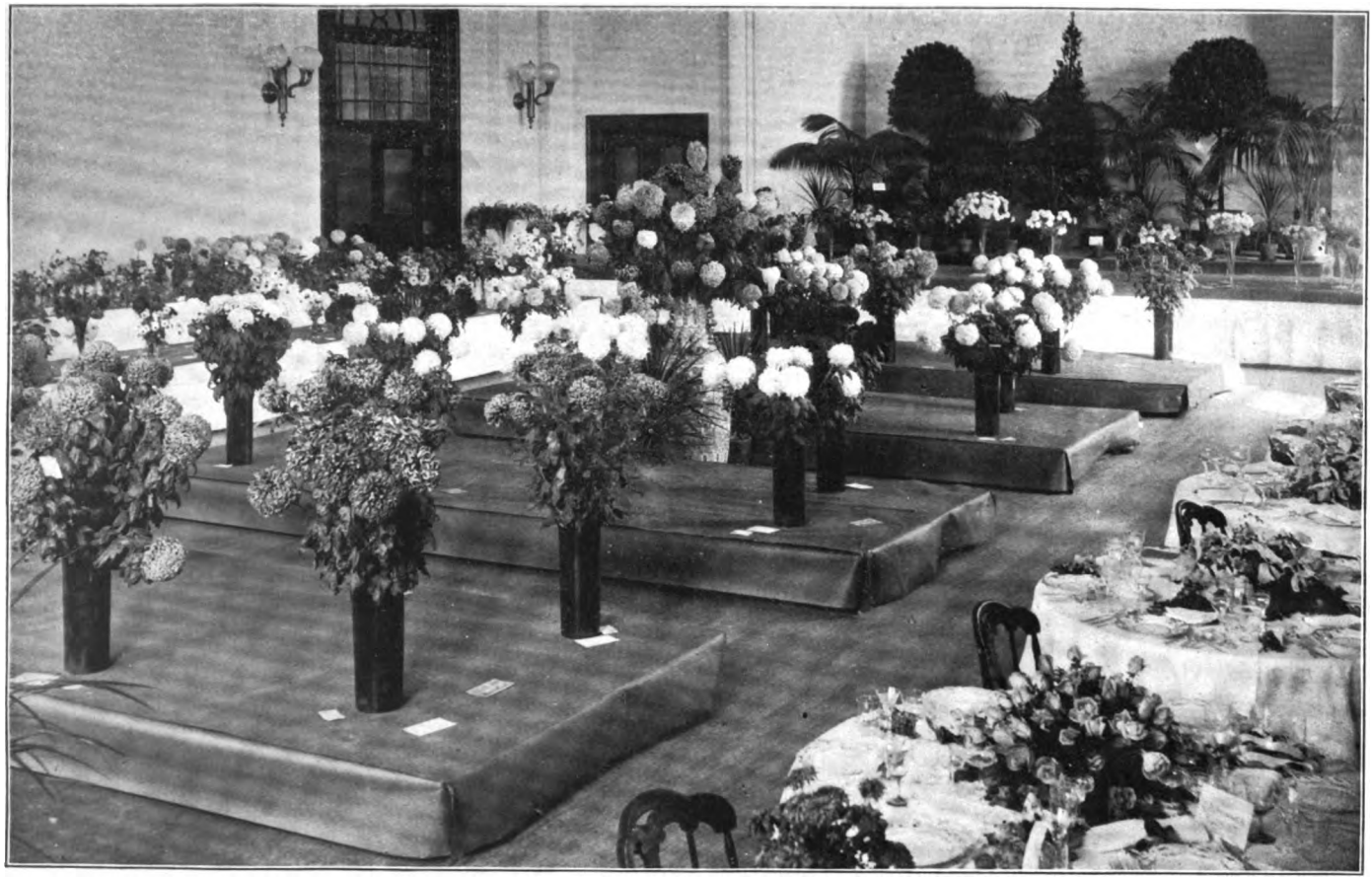

THE CHRYSANTHEMUM SHOW 1906

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The same award was also given Peter B. Robb for a seedling Cattleya Louise, *C. velutina* × *C. labiata.* It has a bright crimson lip with white edge, while the other parts of the flower are brownish crimson.

Two handsome new plants were shown by the Julius Roehrs Co.: *Tillandsia Duvalliana* and *Begonia Rex,* The Marquis. The first bears a paddle-shaped spike of bloom, the bracts of which are a deep pink color from which protrude the characteristic flowers of a deep blue color, altogether a most striking plant.

The begonia has deep black-green leaves, shaded and mottled dark pink, making a very beautiful variety.

Besides the above special awards a First Class Certificate was given to W. A. Riggs, gardener to E. A. Clark, for superior arrangement of specimen chrysanthemum blooms in one of the Society's large china vases. They were superior blooms, remarkably well arranged, and added much to the general effect of the exhibition.

The last exhibit of the year was made by Oakes Ames who showed a well-grown plant of *Cymbidium elegans,* or as it was once called, *Cyperorchis.* It is a very rare species with brownish yellow flowers and crimson spotted lip; more remarkable botanically than horticulturally.

During the year we have awarded in money prizes and gratuities		$3557.00
Two Society's Silver Gilt Medals		
Three Appleton Silver Gilt Medals		
Nine Society's Silver Medals		
One Society's Bronze Medal		
Three Appleton Bronze Medals		
At an estimated value of		137.00
Total value of all awards		$3694.00
Appropriation for 1906	$3925.00	
Special appropriation for Chrysanthemum Show	160.00	
Total appropriation	4085.00	
Amount awarded	3694.00	
Unexpended balance	$391.00	

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We have also awarded
Twenty-one First Class Certificates
Five Cultural Certificates
Forty-nine Honorable Mentions
Twenty Votes of Thanks
Besides the above we have awarded from the
Henry A. Gane Memorial Fund . . $16.00

PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

1906.

JANUARY 24 AND 25.

PRIMULA SINENSIS.— Six plants in not less than six-inch pots:
1st, E. J. Mitton, $5; 2d, William Whitman, $3; 3d, Mrs. J. L. Gardner, $2.

PRIMULA STELLATA.— Six plants in not less than six-inch pots:
1st, William Whitman, $5; 2d, Mrs. J. L. Gardner, $3; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.

PRIMULA OBCONICA VARIETIES.— Six plants in not less than six-inch pots:
1st, Mrs. J. L. Gardner, $6; 2d, G. F. Fabyan, $3; 3d, G. F. Fabyan, $2.

VIOLETS.— Best bunch, one hundred blooms, Double:
1st, J. T. Gale, $3; 2d, Malcolm Orr, $2; 3d, H. F. Calder, $1.
Best bunch, one hundred blooms, Single:
1st, Dr. C. G. Weld, $3; 2d, H. F. Woods, $2; 3d, G. W. Ayer, $1.

CARNATIONS.— Best vase, twenty-five blooms, White:
1st, H. A. Stevens Co., Lady Bountiful, $3.
Best vase, twenty-five blooms, Scarlet:
1st, H. A. Stevens Co., Manley, $3.
Best vase, twenty-five blooms, Light Pink:
1st, L. E. Small, Fiancée, $3; 2d, R. D. Kimball, Enchantress, $2.
Best vase, twenty-five blooms, Daybreak colored:
1st, Backer & Co., Enchantress, $3; 2d, E. A. Wood, Enchantress, $2; 3d, H. A. Stevens Co., Enchantress, $1.
Best vase, twenty-five blooms, Dark Pink:
1st, H. A. Stevens Co., Mrs. Lawson, $3; 2d, H. A. Stevens Co., Pink Patten, $2; 3d, Backer & Co., Pink Patten, $1.

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Best vase, twenty-five blooms, Crimson:
1st, Backer & Co., Harry Fenn, $3; 2d, H. A. Stevens Co., Harry Fenn, $2.
Best vase, twenty-five blooms, Striped:
1st, William Nicholson, Mrs. Patten, $3; 2d, H. A. Stevens Co., Mrs. Patten, $2; 3d, Backer & Co., Mrs. Patten, $1.
Best vase, twenty-five blooms, Yellow:
1st, Backer & Co., Seedling No. 14, $3; 2d, Backer & Co., Seedling No. 78, $2; 3d, Backer & Co., Eldorado, $1.

Gratuities:—

H. A. Stevens Co., Display of Carnations, $4.
H. A. Jahn, Display of Carnations, $2.
William Nicholson, Carnations, $1.
Mrs. A. W. Blake, *Laelia superbiens* and *Cypripedium nitens*, $3.
Julius Roehrs Co., Vase of Oncidiums and Phalænopsis, $2.
William Whitman, Cattleyas, $2.
J. E. Rothwell, Vase of cut Orchids, $3.
William Whitman, *Primula obconica*, $3.
Harvard Botanic Garden, Calanthes and Primulas, $8.
Mrs. Frederick Ayer, Chorizema plants, $3.
Harvard Botanic Garden, Display of Strobilanthes, Cyclamen, and Lachenalias, $4.
Thomas Stock, Vase of Bouvardia and Centaurea, $1.
Augustus Zirngiebel, Pansies, $1.
Julius Roehrs Co., Display of Forced Lilacs, $3.
Mrs. E. M. Gill, Collection of Flowers, $3.

Spring Exhibition.

March 23, 24, 25.

Theodore Lyman Fund.

Indian Azaleas.— Six distinct named varieties:
1st, Edward MacMulkin, $15; 2d, Mrs. J. L. Gardner, $10; 3d, E. W. Breed, $8.

Society's Prizes.

Palms.— Pair, in pots or tubs:
1st, William Whitman, $15; 2d, G. F. Fabyan, $12; 3d, Mrs. J. L. Gardner, $8.
Ericas.— Six, not less than three species:
1st, Edward MacMulkin, $8; 2d, Dr. C. G. Weld, $5.
Orchids.— Three plants:
1st, G. F. Fabyan, $10; 2d, J. E. Rothwell, $6; 3d, E. W. Converse, $4.

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HARD-WOODED GREENHOUSE PLANTS.— Two or more genera, four, in bloom:

1st, Dr. C. G. Weld, $10; 2d, Mrs. J. L. Gardner, $6.

ACACIA.— Specimen plant:

1st, Mrs. Frederick Ayer, $10; 2d, Dr. C. G. Weld, $6; 3d, Mrs. Frederick Ayer, $4.

CLIMBING ROSE.— Specimen plant, in bloom:

1st, M. H. Walsh, $10; 2d, M. H. Walsh, $6; 3d, M. H. Walsh, $4.

COLLECTION OF RAMBLER AND OTHER ROSES.— Suitable for landscape and decorative purposes, grown in pots or tubs:

1st, M. H. Walsh, $35; 2d, M. H. Walsh, $25; 3d, M. H. Walsh, $15.

HARDY PRIMROSES AND POLYANTHUSES.— Twelve plants, distinct varieties:

1st, William Whitman, $6; 2d, William Whitman, $4; 3d, Mrs. J. L. Gardner, $2.

CYCLAMENS.— Ten plants:

1st, G. F. Fabyan, $20; 2d, E. J. Mitton, $15; 3d, G. F. Fabyan, $10.

Ten plants, in not over seven-inch pots:

1st, G. F. Fabyan, $12; 2d, Dr. C. G. Weld, $8; 3d, E. J. Mitton, $6.

Single plant:

1st, Dr. C. G. Weld, $5; 2d, E. W. Converse, $4.

CINERARIAS.— Six varieties:

1st, G. F. Fabyan, $15; 2d, E. J. Mitton, $10; 3d, Mrs. J. L. Gardner, $6.

Specimen plant:

1st, Dr. C. G. Weld, $4; 2d, Mrs. J. L. Gardner, $3.

CINERARIA STELLATA.— Six plants:

1st, William Whitman, $12; 2d, Mrs. J. L. Gardner, $8.

Specimen plant:

1st, William Whitman, $4; 2d, Mrs. J. L. Gardner, $3; 3d, William Whitman, $2.

HYACINTHS.— Twelve named varieties:

1st, William Whitman, $10; 2d, Mrs. J. L. Gardner, $6; 3d, Bussey Institution, $4.

Six named varieties in pots, one in each pot:

1st, William Whitman, $5; 2d, William Whitman, $4; 3d, Mrs. J. L. Gardner, $3.

Three pans, not to exceed twelve inches, ten bulbs of one variety in each:

1st, William Whitman, $10; 2d, G. F. Fabyan, $6; 3d, Mrs. J. L. Gardner, $4.

Single pan, not to exceed twelve inches, with ten bulbs of one variety:

1st, William Whitman, $5; 2d, William Whitman, $4; 3d, Mrs. J. L. Gardner, $3; 4th, Mrs. J. L. Gardner, $2.

TULIPS.— Six eight-inch pans, nine bulbs of one variety in each:

1st, William Whitman, $8; 2d, Mrs. J. L. Gardner, $6; 3d, Bussey Institution, $4.

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Three eight-inch pans, nine bulbs of one variety in each:
1st, Dr. C. G. Weld, $4; 2d, William Whitman, $3; 3d, William Whitman, $2.
Three ten-inch pans, twelve bulbs of one variety in each:
1st, William Whitman, $6; 2d, William Whitman, $5; 3d, Bussey Institution, $4.

POLYANTHUS NARCISSUS.— Four eight-inch pots, five bulbs in each:
1st, Mrs. J. L. Gardner, $6.

JONQUILS.— Six pots, not exceeding eight inches:
1st, William Whitman, $4; 2d, Mrs. J. L. Gardner, $3; 3d, Bussey Institution, $2.

NARCISSUSES.— Six eight-inch pots, distinct varieties, single or double:
1st, William Whitman, $10; 2d, Bussey Institution, $6; 3d, Mrs. J. L. Gardner, $4.
Three eight-inch pots:
1st, William Whitman, $5; 2d, William Whitman, $3; 3d, Mrs. J. L. Gardner, $2.

LILY OF THE VALLEY.— Six pots, not exceeding eight inches:
1st, William Whitman, $4; 2d, Lowthorpe School of Horticulture, $3.

CROCUSES.— Three ten-inch pans, three distinct varieties:
3d, Mrs. A. W. Blake, $2.

TRITONIAS.— Six pots, in varieties:
2d, Dr. C. G. Weld, $3.

ROMAN HYACINTHS.— Six eight-inch pans, ten bulbs in a pan:
1st, William Whitman, $5; 2d, Bussey Institution, $3.

AMARYLLISES.— Six pots, distinct varieties:
1st, G. F. Fabyan, $10.

COLLECTION OF HERBACEOUS SPIRÆAS.— Not less than three varieties:
1st, William Whitman, $10.

DISPLAY OF EASTER PLANTS:
1st, Thomas Roland, $25.

GENERAL DISPLAY OF SPRING BULBOUS PLANTS.— All classes:
1st, William Whitman, $30; 2d, Bussey Institution, $20.

HYBRID PERPETUAL ROSES.— Twelve blooms in not less than four named varieties:
1st, Col. Charles Pfaff, $10; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $6.
Twelve blooms of Ulrich Brunner:
2d, J. McFarland, $6.

TENDER ROSES IN VASES:
2d, W. H. Elliott, $12.
Twenty-five blooms of The Bride:
1st, W. H. Elliott, $10.
Twenty-five blooms of Bridesmaid:
1st, W. H. Elliott, $10.
Twenty-five blooms of Liberty:
1st, W. H. Elliott, $12.

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Twenty-five blooms of any other variety:
1st, W. H. Elliott, Killarney, $10; 2d, R. T. McGorum, Souvenir du President Carnot, $6; 3d, J. McFarland, Souvenir du President Carnot, $4.

CARNATIONS.— Twenty-five blooms of any named Crimson variety:
1st, M. A. Patten, Harry Fenn, $5; 2d, S. J. Goddard, Harry Fenn, $4; 3d, Backer & Co., Harry Fenn, $3.

Twenty-five blooms of any other Dark Pink variety:
1st, T. F. Mathews, Mrs. T. W. Lawson, $5; 2d, E. A. Wood, Mrs. T. W. Lawson, $4; 3d, H. A. Stevens Co., Pink Patten, $3.

Twenty-five blooms of any named Light Pink variety:
1st, William Nicholson, Enchantress, $5; 2d, G. E. Buxton, Enchantress, $4; 3d, M. A. Patten, Enchantress, $3.

Twenty-five blooms of any named Scarlet variety:
1st, H. A. Stevens Co., J. H. Manley, $5; 2d, S. J. Goddard, Cardinal, $4; 3d, M. A. Patten, J. H. Manley, $3.

Twenty-five blooms of any named White variety:
1st, G. E. Buxton, Lady Bountiful, $5; 2d, S. J. Goddard, Lady Bountiful, $4; 3d, William Nicholson, Lady Bountiful, $3.

Twenty-five blooms of any named Yellow Variegated variety:
1st, Backer & Co., Golden Glow, $5; 2d, Backer & Co., Eldorado, $4.

Twenty-five blooms of any named White Variegated variety:
1st, M. A. Patten, Mrs. M. A. Patten, $5; 2d, F. R. Pierson Co., Variegated Lawson, $4; 3d, William Nicholson, Mrs. M. A. Patten, $3.

PANSIES.— Forty-eight cut blooms, not less than twenty-four varieties.
1st, Mrs. E. M. Gill, $3.

VIOLETS.— Bunch of one hundred blooms of Lady Hume Campbell:
1st, Malcolm Orr, $3; 2d, E. Bingham, $2; 3d, H. F. Calder, $1.

Bunch of one hundred blooms of any other Double variety:
1st, H. F. Woods, Swanley White, $3; 2d, H. F. Woods, Marie Louise, $2; 3d, N. F. Comley, Swanley White, $1.

Bunch of one hundred blooms of Princess of Wales:
1st, William Sim, $3; 2d, N. F. Comley, $2; 3d, E. Bingham, $1.

Bunch of one hundred blooms of any other Single variety:
1st, William Sim, Governor Herrick, $3; 2d, Mrs. Frederick Ayer, California, $2; 3d, H. F. Woods, California, $1.

Gratuities:—

E. W. Breed, Azaleas, $4.
William Whitman, Specimen Azalea Madame van der Cruyssen, $2.
E. W. Converse, Dendrobiums, $4.
William Whitman, Cattleya, $1.
Lager & Hurrell, Display of Orchids, $10.
Peter Murray, Display of Orchids, $5.

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Julius Roehrs Co., Orchids and Foliage Plants, $5.
E. W. Converse, Display of Cyclamen and Primulas, $5.
Bussey Institution, Forced Shrubs and Herbaceous Plants, $12.
G. F. Fabyan, Acacias, $3.
R. & J. Farquhar & Co., Display of Spring Bulbs, $25.
Mrs. A. W. Blake, Display of Spring Bulbs, $8.
W. W. Rawson, Bed of Tulips, $10.
J. McFarland, Vase of Lily of the Valley, $1.
M. A. Patten, Two Vases of Carnations, $4.
Peter Fisher, Three Vases of Carnations, $4.
William Nicholson, Three Vases of Carnations, $2.
Backer & Co., Vase of Carnations, $1.
S. J. Goddard, Vase of Carnation Helen Goddard, $1.
Guttman & Weber, Vase of Carnation Victory, $2.
J. T. Gale, Two vases of Sweet Peas, $2.
Malcolm Orr, Vase of Sweet Peas, $1.
A. T. Zvolanek, Vase of Sweet Peas, $1.
James Anderson, Display of Stocks, $2.
Mrs. H. F. Durant, Angræcum, $2.
Mrs. J. M. Sears, Amaryllis and Gardenias, $4.
J. H. White, Strelitzia and Adiantums, $4.
Thomas Roland, Mahernias and Bougainvilleas, $5.
Mrs. E. M. Gill, Display of Flowers, $2.

MAY 5.

CALCEOLARIAS.— Six varieties, in pots:
1st, G. F. Fabyan, $15; 2d, G. F. Fabyan, $10.

PELARGONIUMS.— Six named Show or Fancy varieties, in not less than eight-inch pots, in bloom:
1st, G. F. Fabyan, $10; 2d, G. F. Fabyan, $6.

TULIPS.— Forty-eight blooms, not less than twelve varieties:
1st, William Whitman, $5; 2d, W. J. Clemson, $3; 3d, William Whitman, $2.

HARDY NARCISSUSES.— Collection of fifty vases of not less than ten named varieties:
1st, Langwater Gardens, $10; 2d, W. J. Clemson, $6.

PANSIES.— Forty-eight blooms, not less than twenty-four varieties:
1st, Mrs. A. W. Blake, $3; 2d, Mrs. E. M. Gill, $2; 3d, J. B. Shurtleff, Jr., $1.

Gratuities:—

Dr. C. G. Weld, Calceolaria Golden Gem, $4.
Harvard Botanic Garden, Display of Spring Flowers, Narcissuses, and Pansies, $8.
William Whitman, Tulips and Hyacinths, $3.

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W. J. Clemson, Display of Tulips, $1.
E. W. Converse, *Amaryllis Johnsoni* and *Cattleya Mendelii*, $3.
Mrs. E. M. Gill, Display, $1.

Rhododendron Exhibition.

June 2.

H. H. Hunnewell Fund.

Rhododendrons.— Twelve distinct varieties of unquestioned hardiness, named:
1st, Mrs. J. L. Gardner, $10.
Six distinct varieties of unquestioned hardiness, named:
1st, Mrs. A. W. Blake, $5; 2d, G. F. Fabyan, $3.
Hardy Azaleas.— Twelve varieties, one vase of each:
1st, Mrs. A. W. Blake, $6; 2d, William Whitman, $4; 3d, T. C. Thurlow & Co., $2.
Six varieties, one vase of each:
1st, Mrs. J. L. Gardner, $4; 2d, William Whitman, $3.
Cluster of trusses, one variety:
1st, William Whitman, $3; 2d, William Whitman, $2; 3d, William Whitman, $1.

Society's Prizes.

German Irises.— Thirty-six vases of three trusses each, of not less than twelve varieties:
1st, William Whitman, $5.
Hardy Pyrethrums.— Display of thirty bottles, Single and Double, six or more varieties:
1st, Mrs. J. L. Gardner, $5; 2d, William Whitman, $3.
Hardy Ornamental Trees and Shrubs.— Display of not less than twenty genera and thirty species and varieties, named, cut blooms or foliage:
1st, Mrs. J. L. Gardner, $10; 2d, W. Heustis & Son, $6.
Tree Peonies.— Not less than five varieties:
1st, William Whitman, $10; 3d, T. C. Thurlow & Co., $6.
Hardy Herbaceous Flowers.— Distinct species and varieties, not less than ten genera, grasses admissible, thirty bottles:
1st, Blue Hill Nurseries, $10.

Gratuities:—

Mrs. J. L. Gardner, Display of Rhododendrons, $10.
T. C. Thurlow & Co., Azaleas and Peonies, $3.
William Whitman, Iris and Azaleas, $3.
Blue Hill Nurseries, Iris and Aquilegias, $2.
J. E. Rothwell, Vase of cut Orchids, $3.

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Mrs. J. L. Gardner, *Magnolia fuscata*, $1.
Harvard Botanic Garden, Display of Herbaceous Flowers, $8.
G. F. Fabyan, Vase of Stock White Column, $1.
Mrs. E. M. Gill, Display, $3.

Peony Exhibition.

June 15 and 16.

Special Prizes offered by Kelway & Son, Langport, England.

Herbaceous Peonies.— Collection of eighteen named varieties, single or double:
1st, William Whitman, Silver Gilt Medal; 2d, George Hollis, Bronze Medal.

Society's Prizes.

Herbaceous Peonies.— Collection of thirty or more varieties, double, one flower of each:
1st, William Whitman, $15; 2d, H. A. Stevens Co., $12; 3d, James McKissock, $8; 4th, George Hollis, $6; 5th, T. C. Thurlow & Co., $4.

Collection of twelve named varieties, double, six flowers of each:
1st, William Whitman, $12.

Specimen bloom, double:
1st, Dr. C. G. Weld, $2; 2d, T. C. Thurlow & Co., $1.

Collection of twelve or more named varieties, single:
1st, T. C. Thurlow & Co., $4; 2d, William Whitman, $3.

Collection of twelve or more named varieties, Japanese single, including all single varieties destitute of pollen:
1st, George Hollis, $4.

Vase of blooms on long stems, arranged in the Society's large china vases:
1st, Dr. C. G. Weld, $10; 2d, E. L. Lewis, $6; 3d, E. B. Wilder, $4.

Collection of six named double varieties, White, one flower of each:
1st, A. H. Fewkes, $3; 2d, T. C. Thurlow & Co., $2; 3d, H. A. Stevens Co., $1.

Collection of six named double varieties, Rose Pink:
1st, A. H. Fewkes, $3; 2d, H. A. Stevens Co., $2.

Collection of six named double varieties, Salmon Pink:
1st, H. A. Stevens Co., $3.

Collection of six named double varieties, Red or Crimson:
1st, T. C. Thurlow & Co., $3; 2d, H. A. Stevens Co., $2.

Vase of twenty-five blooms, double, White or Blush:
1st, H. A. Stevens Co., $5.

Vase of twenty-five blooms, double, Pink or Rose:
1st, T. C. Thurlow & Co., $5.

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Vase of twenty-five blooms, double, Red or Crimson:
1st, William Whitman, $5; 2d, H. A. Stevens Co., $3.

For Non-Commercial Growers Only.

Collection of twelve named varieties, double, one flower of each:
1st, I. L. Blanchard, $6; 2d, E. L. Lewis, $4; 3d, James McKissock, $3.

Gratuities:—

E. J. Shaylor, Peonies, $15.
A. H. Fewkes, " $6.
Mrs. E. M. Gill, " $6.
C. W. Ward, " $5.
Mrs. Daniel Low, " $3.
J. H. White, " $2.
E. L. Lewis, " $2.
T. C. Thurlow & Co., " $2.
Mrs. J. B. Lawrence, " $2.
Mrs. C. H. Glazier, " $1.
Mrs. J. L. Gardner, Gloxinias, $6.
Mrs. Oliver Ames, Sr., Water Lilies, $5.
William Whitman, *Cattleya Gaskelliana*, $1.

Rose and Strawberry Exhibition.

June 22 and 23.

Special Prizes.

Theodore Lyman Fund.

Hardy Roses.— Twenty-four distinct named varieties, three of each variety.
1st, Miss S. B. Fay, $25.

Society's Prizes.

Twelve named varieties, three of each:
1st, Miss S. B. Fay, $12.
Six named varieties, three of each:
1st, Miss S. B. Fay, $6.
Twenty-four named varieties, one of each:
1st, Miss S. B. Fay, $12; 3d, William Whitman, $6.
Eighteen named varieties, one of each:
1st, Miss S. B. Fay, $8; 2d, William Whitman, $6.
Twelve named varieties, one of each:
1st, W. J. Clemson, $6; 2d, William Whitman, $4.

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Six named varieties, one of each:
1st, G. F. Fabyan, $4; 2d, Dr. C. G. Weld, $3; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.

Best collection of Hybrid Tea Roses:
1st, Miss S. B. Fay, $8.

Six blooms of Baroness Rothschild:
1st, Mrs. A. W. Blake, $3; 2d, J. C. Chaffin Estate, $2; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $1.

Six blooms of Mrs. John Laing:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, Dr. C. G. Weld, $2.

Six blooms of General Jacqueminot:
1st, Dr. C. G. Weld, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.

Six blooms of Ulrich Brunner:
1st, Miss S. B. Fay, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.

Six blooms of any other variety:
1st, Dr. C. G. Weld, $3; 2d, W. J. Clemson, $2; 3d, William Whitman, $1.

Six blooms of Frau Karl Druschki:
1st, Miss S. B. Fay, $3; 2d, Dr. C. G. Weld, $1.

Six blooms of Mrs. R. G. Sharman Crawford:
1st, Miss S. B. Fay, $3; 2d, Dr. C. G. Weld, $1.

Six blooms of Margaret Dickson:
1st, Miss S. B. Fay, $3; 2d, G. F. Fabyan, $1.

General Collection.— One hundred bottles of Hardy Roses, in the Society's racks:
1st, Miss S. B. Fay, $15; 2d, W. J. Clemson, $10; 3d, Mrs. E. M. Gill, $8; 4th, J. C. Chaffin Estate, $6; 5th, Mrs. J. L. Gardner, $5.

Sweet Williams.— Display, eighteen vases, of three trusses each, not less than six varieties:
1st, William Whitman, $3; 2d, Dr. C. G. Weld, $2; 3d, Wilfrid Wheeler, $1.

Gratuities:—

Langwater Gardens, Display of Roses, $4.
Miss S. B. Fay, " " " $3.
W. J. Clemson, " " " $3.
Mrs. A. W. Blake, " " " $2.
Mrs. E. A. Wilkie, " " " $1.
Mrs. E. M. Gill, Display of Roses, Peonies, etc., $8.
T. C. Thurlow & Co., Display of Peonies, $12.
E. J. Shaylor, " " " $5.
George Hollis, " " " $4.
Dr. C. S. Minot, " " " $4.
A. H. Fewkes, " " " $1.

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Mt. Desert Nursery, Single Peonies, $3.
Mrs. J. L. Gardner, *Campanula Medium*, in pots. $6.
Mrs. A. W. Blake, " " " " $5.
Mrs. J. L. Gardner, " " cut flowers, $4.
Mt. Desert Nursery, Herbaceous Plants, $5.
Mrs. J. B. Lawrence, " " $3.
William Whitman, Display of Flowers, $4.
Warren Heustis, Display of Flowering Trees and Shrubs, $5.

JULY 7.

HARDY ROSES.— Collection, named, not less than twelve varieties, filling fifty vases, one rose in each vase:
2d, William Whitman, $8.

IRIS KAEMPFERI.— Collection of varieties filling twenty-five vases:
1st, Mrs. J. L. Gardner, $8; 2d, William Whitman, $5.

CAMPANULA MEDIUM.— Collection, not less than fifteen bottles:
1st, William Whitman, $4; 2d, Mrs. J. L. Gardner, $3.

DELPHINIUMS.— Display, thirty vases of three spikes each:
1st, William Whitman, $10; 2d, Mrs. J. L. Gardner, $6.

HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties, not less than ten genera, grasses admissible:
1st, Bay State Nurseries, $8; 2d, Blue Hill Nurseries, $6.

Gratuities:—

Harvard Botanic Garden, Display of Herbaceous Flowers, $8.
Blue Hill Nurseries, " " " " $5.
Mrs. J. B. Lawrence, " " " " $3.
Bay State Nurseries, Herbaceous Flowers and Roses, $4.
William Whitman, Crimson Rambler Roses, $1.
Mrs. J. B. Lawrence, " " " $1.
Mrs. A. W. Blake, Vase of *Hemerocallis fulva*, $1.
" " " *Brassia verrucosa*, $1.
Mrs. Frederick Ayer, Tuberous Begonias, $2.
George Hollis, Display of cut Geraniums, $1.
Arthur Ouimet, Double-flowered Pomegranate, $1.
Thomas Doliber, Display of Flowers, $3.
Mrs. E. M. Gill, " " " $3.

JULY 21.

ACHIMENES.— Six, of six varieties, in not over ten-inch pans:
1st, Mrs. J. L. Gardner, $10.

SWEET PEAS.— Display of named varieties filling thirty vases, twenty-five sprays in each, cut flowers with their own foliage:
1st, W. J. Clemson, $8.

Best twelve varieties, named, six sprays of each:
1st, Joseph Thorpe, $3; 2d, A. E. Hartshorn, $2; 3d, William Whitman, $1.

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Fifty sprays, any named Light Pink or Blush variety:
1st, A. E. Hartshorn, Countess of Spencer, $3; 2d, E. L. Lewis, Gladys Unwin, $2; 3d, W. J. Clemson, Gladys Unwin, $1.

Fifty sprays, any named White variety:
1st, O. B. Kenrick, $3; 2d, A. E. Hartshorn, $2; 3d, W. J. Clemson, $1.

Fifty sprays, any named Rose colored variety:
1st, E. L. Lewis, American Queen, $3.

Fifty sprays, any named Blue or Purple variety:
1st, E. L. Lewis, Helen Pierce, $3.

Fifty sprays, any named Lavender variety:
1st, A. E. Hartshorn, Mrs. George Higginson, $3; 2d, W. J. Clemson, Lady Grisel Hamilton, $2; 3d, O. B. Kenrick, Lady Grisel Hamilton, $1.

Fifty sprays, any named Red or Crimson variety:
1st, O. B. Kenrick, King Edward VII, $3.

Fifty sprays, any named Orange or Salmon variety:
1st, W. J. Clemson, Miss Willmott, $3; 2d, E. L. Lewis, Miss Willmott, $2; 3d, Mrs. A. W. Blake, Lady Mary Currie, $1.

Fifty sprays, any named variety, any other color:
1st, E. L. Lewis, Maid of Honor, $3; 2d, E. L. Lewis, America, $2; 3d, O. B. Kenrick, Stanley, $1.

HARDY AQUATIC FLOWERS.— Collection, named:
1st, Mrs. J. L. Gardner, $10.

Gratuities:—

W. W. Rawson, Display of Sweet Peas, $5.
E. L. Lewis, " " " " $2.
W. J. Clemson, " " " " $1.
Joseph Thorpe, Dahlias, $2.
E. L. Lewis, Hollyhocks, $1.
Mrs. J. L. Gardner, *Clerodendron fallax*, $2.
William Whitman, Hydrangeas, $10.
J. E. Rothwell, Vase of Orchids, $2.
Blue Hill Nurseries, Phlox and Lilies, $1.
G. F. Fabyan, Shirley Poppies and *Hypericum Moserianum*, $3.
R. & J. Farquhar & Co., Herbaceous Flowers, $5.
Mrs. A. W. Blake, " " $5.
Mrs. J. B. Lawrence, " " $3.
Harvard Botanic Garden, Herbaceous Flowers and Aquatics, $10.
William Whitman, Display of Flowers, $3.
Mrs. E. M. Gill, " " " $2.

AUGUST 4.

PERENNIAL PHLOXES.— Twelve named varieties, one truss of each:
1st, T. C. Thurlow & Co., $8; 2d, William Whitman, $6; 3d, H. A. Stevens Co., $4; 4th, W. C. Winter, $2.

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HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties, not less than ten genera, grasses admissible:

1st, Blue Hill Nurseries, $10.

ANNUALS.— General display, named, not less than twenty-five varieties, filling not less than one hundred bottles:

1st, William Whitman, $10; 2d, Mrs. J. L. Gardner, $8; 3d, Mrs. E. M. Gill, $6.

Gratuities:—

T. C. Thurlow & Co., Display of Phlox, $4.
Langwater Gardens, " " " $3.
Blue Hill Nurseries, " " " $2.
William Whitman, Herbaceous Plants, $3.
Harvard Botanic Garden, Display of Perennials, $8.
" " " " " Annuals, $6.
Towle's Dahlia Gardens, Display of Dahlias, $3.
Mrs. J. B. Lawrence, " " " $2.
A. E. Johnson, " " " $2.
W. C. Winter, " " " $2.
Joseph Thorpe, " " " $1.
W. G. Winsor, " " " $1.
Lager & Hurrell, Orchids, $2.
Mrs. A. W. Blake, Display of Balsams, $2.
Mrs. J. L. Gardner, Display of Pentstemons, $1.
Mrs. E. M. Gill, Display of Flowers, $2.
Mrs. J. B. Lawrence, " " " $2.

AUGUST 18.

PERENNIAL PHLOXES.— General display in not less than thirty vases, named:

1st, T. C. Thurlow & Co., $6; 2d, F. W. Spinney, $5; 3d, Blue Hill Nurseries, $3; 4th, William Whitman, $2.

GLADIOLI.— Twelve named varieties, one spike of each:

1st, J. K. Alexander, $5; 2d, William Whitman, $3; 3d, J. L. Childs, $2.

Display of named and unnamed varieties, filling one hundred vases, arranged for effect with any foliage:

1st, J. L. Childs, $8; 2d, C. S. Pratt, $6; 3d, J. K. Alexander, $4.

CHINA ASTERS.— Display of Large Flowered of all classes, named, not less than fifty vases, three flowers in each:

1st, William Whitman, $6; 2d, William Whitman, $4; 3d, O. B. Kenrick, $2.

Gratuities:—

W. J. Clemson, Asters and Gladioli, $2.
A. E. Johnson, Dahlias, $3.
J. K. Alexander, " $2.

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Towle's Dahlia Gardens, Dahlias, $2.
Mrs. J. B. Lawrence, " $2.
W. G. Winsor, " $2.
W. W. Rawson, " $2.
W. C. Winter, " $1.
William Whitman, Vase of *Lilium tigrinum*, $1.
Harvard Botanic Garden, Herbaceous Flowers, $8.
Blue Hill Nurseries, " " $6.
Mrs. A. W. Blake, " " $3.
Mrs. J. B. Lawrence, " " $1.
Mrs. E. M. Gill, " " $2.

Annual Exhibition of Plants and Flowers.

September 5 and 6.

Palms.— Pair, in pots or tubs:
1st, Mrs. Frederick Ayer, $12; 2d, William Whitman, $10; 3d, Mrs. J. L. Gardner, $8.

Six Greenhouse and Stove Plants.— Decorative specimens of different named varieties:
1st, Mrs. J. L. Gardner, $20; 2d, Mrs. J. L. Gardner, $15; 3d; Mrs. J. L. Gardner, $10.

Caladiums.— Six named varieties:
1st, Mrs. J. L. Gardner, $10.

Ferns.— Five named varieties:
1st, Mrs. J. L. Gardner, $12.

Specimen, other than Tree Fern:
1st, Mrs. J. L. Gardner, $4.

Adiantums.— Five named species:
1st, Mrs. J. L. Gardner, $10.

Dracaenas.— Six named varieties:
1st, Mrs. Frederick Ayer, $8; 2d, Mrs. J. L. Gardner, $6.

Crotons.— Twenty plants, not less than eighteen named varieties, in not less than six-inch pots:
1st, Mrs. Frederick Ayer, $20.

Dahlias.— Show, eighteen blooms, named varieties:
1st, J. K. Alexander, $4; 2d, E. W. Ela, $3; 3d, H. F. Burt, $2.

Fancy, eighteen blooms, named varieties:
1st, E. W. Ela, $4; 2d, W. H. Symonds, $3; 3d, W. C. Winter, $2.

Cactus, eighteen blooms, named varieties:
1st, E. W. Ela, $4; 2d, Mrs. H. A. Jahn, $3; 3d, W. P. Lothrop, $2.

Decorative, twelve blooms, named varieties:
1st, W. G. Winsor, $3; 2d, W. D. Hathaway, $2; 3d, F. L. Tinkham $1.

Show, twelve blooms, named varieties:
1st, J. K. Alexander, $3; 2d, E. W. Ela, $2; 3d, W. P. Lothrop, $1.

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Fancy, twelve blooms, named varieties:
1st, E. W. Ela, $3; 2d, Mrs. H. A. Jahn, $2; 3d, W. P. Lothrop, $1.
Best single bloom of any class, introduction of 1903 or later:
1st, W. G. Winsor, F. G. Baker, $2; 2d, J. H. Flint, Elberton, $1.
Pompon, twelve vases of three blooms each:
1st, J. K. Alexander, $3; 2d, W. D. Hathaway, $2; 3d, E. W. Ela, $1.
Single, twelve vases of three blooms each:
1st, E. W. Ela, $3; 2d, W. P. Lothrop, $2; 3d, W. C. Winter, $1.
Largest and best collection of named varieties, one vase of each:
1st, Mrs. L. M. Towle, $8; 2d, E. W. Ela, $6; 3d, W. C. Winter, $4.

HARDY HERBACEOUS FLOWERS.— Thirty bottles, distinct species and varieties, not less than ten genera, grasses admissible:
1st, Blue Hill Nurseries, $10; 2d, Bay State Nurseries, $8.

For Amateurs only.

DAHLIAS.— Twenty-five named varieties, large flowered, all classes, one flower of each:
1st, J. H. Flint, $6; 2d, W. F. Hall, $4; 3d, J. H. Flint, $2.

Gratuities:—

Harvard Botanic Garden, Display of Foliage Plants, $40.
R. & J. Farquhar & Co., " " " " $10.
J. R. Clarke, Herbaceous Plants, $2.
Bay State Nurseries, Display of Phlox and Herbaceous Plants, $5.
William Whitman, Display of Palms, $6.
J. K. Alexander, Display of Dahlias, $2.
Mrs. H. A. Jahn, " " " $1.
W. D. Hathaway, " " " $1.
Lager & Hurrell, Display of Orchids, $5.
J. K. Alexander, Display of Gladioli, $1.
H. H. Rogers, Display of Tuberous Begonias, $1.
Blue Hill Nurseries, Display of Grasses, $2.
Mrs. E. M. Gill, Display of Flowers, $3.
Mrs. A. W. Blake, " " " $3.

ANNUAL EXHIBITION OF FRUITS AND VEGETABLES.

OCTOBER 10 AND 11.

Gratuities:—

Towle's Dahlia Gardens, Collection of Dahlias, $3.
Blue Hill Nurseries, Display of Herbaceous Plants, $2.

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Chrysanthemum Show.

November 2, 3, 4.

Special Prizes.

Henry A. Gane Memorial Fund.

Chrysanthemums.— For the best specimen plant of Marcia Jones, Henry A. Gane, Mrs. H. A. Gane, or any of the sports or seedlings of these three varieties:
2d, E. J. Mitton, $6.

H. H. Hunnewell Fund.

Hardy Coniferous Trees.— Display in pots and tubs, named:
1st, R. & J. Farquhar & Co., $25.

Society's Prizes.

Chrysanthemums.— Display of eight named plants in not over twelve-inch pots, any or all classes, distinct varieties:
1st, J. S. Bailey, $75; 4th, W. H. Elliott, $30.
Two Japanese Incurved:
1st, J. S. Bailey, $10; 3d, W. H. Elliott, $4.
Two Reflexed, distinct named varieties:
1st, J. S. Bailey, $10; 3d, W. H. Elliott, $4.
Specimen Japanese Incurved, named variety:
1st, J. S. Bailey, $6; 2d, E. J. Mitton, $4; 3d, W. H. Elliott, $3.
Specimen Reflexed, named variety:
1st, J. S. Bailey, $6; 3d, W. H. Elliott, $3.
Specimen Pompon, named variety:
2d, W. H. Elliott, $4.
Specimen plant of any variety not included in the above classes:
1st, G. F. Fabyan, $6; 3d, W. H. Elliott, $3.
Six plants of six different varieties, grown to six stems with one bloom to each stem, in seven-inch pots:
1st, Mrs. Lester Leland, $10; 2d, Mrs. A. W. Blake, $8; 3d, William Whitman, $6.
Begonia Rex.— Ten pots, of ten varieties:
1st, Mrs. J. L. Gardner, $8; 2d, Mrs. A. W. Blake, $6.
Best Arranged Group of Foliage and Flowering Plants,— covering two hundred square feet:
1st, William Whitman, $50; 2d, Edward MacMulkin, $35; 3d, Sidney Hoffman, $25.
Orchids.— Display arranged for effect with foliage plants, covering a space of not more than fifty square feet:
1st, Mrs. J. L. Gardner, $25; 2d, Edward MacMulkin, $15.

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Special Prizes.

Josiah Bradlee Fund.

CHRYSANTHEMUMS.— Twenty-five blooms, of twenty-five distinct varieties, named:
1st, R. W. Paterson, $25; 2d, P. B. Robb, $15; 3d, William Whitman, $10.
Six vases of six named varieties, ten blooms each:
1st, William Whitman, $30.

Henry A. Gane Memorial Fund.

CHRYSANTHEMUMS.— For the best six specimen blooms of Mrs. Jerome Jones, Yellow Mrs. Jerome Jones, or any of the sports or seedlings of these two varieties:
1st, A. F. Whitin, $6; 2d, James Nicol, $4.

Society's Prizes.

Twelve blooms, Incurved, named, in vases:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $6.
Twelve blooms, Japanese, named, in vases:
1st, P. B. Robb, $8; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $6.
Twelve blooms, Japanese Incurved, named, in vases:
1st, Mrs. Lester Leland, $8.
Twelve blooms, Reflexed, named, in vases:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $8.
Twelve blooms, Anemone, named, in vases:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $8.
Twelve sprays, Pompon, distinct:
1st, P. B. Robb, $5; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Six best varieties, named, introductions of the current year:
1st, William Whitman, $6; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $4.
Vase of blooms on long stems, Pink, named:
1st, G. F. Fabyan, Morton F. Plant, $10; 2d, A. F. Whitin, William Duckham, $8; 3d, Mrs. E. M. Gill, Dr. Enguehard, $6.
Vase of ten blooms on long stems, Red, named:
1st, William Whitman, John Shrimpton, $10; 2d, G. F. Fabyan, John Shrimpton, $8.
Vase of ten blooms on long stems, White, named:
1st, William Whitman, Merza, $10; 2d, William Whitman, Nellie Pockett, $8; 3d, G. F. Fabyan, Beatrice May, $6.
Vase of ten blooms on long stems, Yellow, named:
1st, A. F. Whitin, Cheltoni, $10; 2d, S. A. Borden, Col. Appleton, $8; 3d, William Whitman, Col. Appleton, $6.

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Vase of ten blooms on long stems, any other color, named:
1st, G. F. Fabyan, Donald McLeod, $10; 2d, James Nicol, Harrison Dick, $8; 3d, A. F. Whitin, Kate Broomhead, $6.

ORCHIDS.— Display of named species and varieties, filling not less than twenty bottles:
1st, J. E. Rothwell, Appleton Silver Gilt Medal; 2d, Edward MacMulkin, Appleton Bronze Medal.

CARNATIONS.— Twenty-five blooms of any named Crimson variety:
1st, Backer & Co., $4.

Twenty-five blooms of any named Daybreak colored variety:
1st, P. Dexter, $4; 2d, Exeter Conservatories, $3.

Twenty-five blooms of any named Dark Pink variety:
1st, Backer & Co., $4.

Twenty-five blooms of any named Light Pink variety:
1st, Backer & Co., Rose Pink Enchantress, $4.

Twenty-five blooms of any named Scarlet variety:
1st, Backer & Co., Robert Craig, $4; 2d, Backer & Co., Victory, $3; 3d, Backer & Co., Flambeau, $2.

Twenty-five blooms of any named White variety:
1st, Peter Fisher, White Perfection, $4; 2d, Backer & Co., Puritan, $3.

Twenty-five blooms of any named Yellow Variegated variety:
1st, Backer & Co., Sunrise, $4; 2d, Backer & Co., Eldorado, $3; 3d, Backer & Co., Yellow King, $2.

Twenty-five blooms of any named White Variegated variety:
1st, Backer & Co., Mrs. M. A. Patten, $4.

Special Prizes for Decorated Dinner Tables.

For the best Decorated Dinner Table laid for six covers:
1st, Sidney Hoffman, $75 and a Silver Gilt Medal; 2d, J. J. Casey, $50 and a Silver Medal; 3d, Houghton & Clark, $35 and a Bronze Medal.

Gratuities:—

E. A. Clark, Vase of Chrysanthemums, $10.
Mrs. E. M. Gill, Display of Chrysanthemums, $8.
W. H. Elliott, " " " $8.
Dr. C. G. Weld, Five Standard Chrysanthemums, $5.
John Shepard, Display of Chrysanthemums, $4.
F. R. Pierson Co., Two vases of Carnation Winsor, $2.
Peter Fisher, Vase of Carnation Evangeline, $1.
W. H. Elliott, Two vases of Roses, Richmond and Wellesley, $6.
Waban Rose Conservatories, Roses Wellesley and American Beauty, $6.
Julius Roehrs Co., Display of Orchids, $10.
Lager & Hurrell, " " " $5.
William Whitman, *Cattleya labiata*, $1.

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N. A. Lindsey, Display of Dahlias, $4.
G. H. Walker, " " " $1.
W. C. Winter, " " " $1.
C. D. Sias, Six specimen plants of Begonia Gloire de Lorraine, $6.
Edward MacMulkin, Display of Palms, $25.
R. & J. Farquhar & Co., Palms, $10.
G. F. Fabyan, " $3.
Mrs. J. L. Gardner, " $1.

SOCIETY'S SILVER GILT MEDAL.

March 23. H. H. Barrows, *Nephrolepis Whitmanii.*

SOCIETY'S SILVER MEDALS.

January 24. Oakes Ames, Rare Orchids of botanical value.
" " J. E. Rothwell, Laelio-cattleya General French (*C. Trianæ* var. *delicata* × *L. cinnabarina.*)
March 23. E. O. Orpet, *Cattleya Thayeriana superba.*
" " Mrs. B. B. Tuttle, *Dendrobium superbum Dearei.*
May 5. Langwater Gardens, Display of Narcissuses.
June 15. Blue Hill Nurseries, Display of Herbaceous Flowers.
" " William Miller, Collection of Eremuri.
November 2. Miss E. J. Clark, Collection of Single Chrysanthemums.

SOCIETY'S BRONZE MEDAL.

June 22. Walter Hunnewell, Early Flowering Chrysanthemums.

FIRST CLASS CERTIFICATES OF MERIT.

January 24. Alexander Ogg, Amaryllis of remarkable growth.
March 23. Lager & Hurrell, *Cattleya Schroderæ.*
" " A. C. Zvolanek, Seedling winter Flowering Sweet Peas.
June 2. J. E. Rothwell, Laelio-cattleya Acis.
" " " " " " Marguerite.
June 15. George Hollis, Seedling Peony Loveliness.
" " T. C. Thurlow & Co., Seedling Peony Pride of Essex.
" " Blue Hill Nurseries, *Acer Negundo Odessianum.*
" " E. J. Shaylor, Peony Therese.
June 22. George Hollis, Seedling Peony Mrs. Julia Ward Howe.
July 21. J. E. Rothwell, *Cypripedium Rolfei.* (*C. bellatulum* × *C. Rothschildianum.*)
August 4. Blue Hill Nurseries, *Gypsophila paniculata,* fl. pl.
August 22. E. F. Dwyer & Son, *Clematis heracleæfolia* var. *stans* form.
September 5. Blue Hill Nurseries, *Liatris pycnostachya superba.*
" " Henry A. Dreer, Display of Aquatics.
October 10. Blue Hill Nurseries, *Aconitum Fisheri.*
" " J. C. Forbes, Seedling Dahlia Ruth Forbes.
" " " " " " Newport.

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November 2. C. H. Totty, Chrysanthemum, Sport from William Duckham.

November 2. W. A. Riggs, Superior vase arrangement of specimen flowers of Chrysanthemums.

Honorable Mentions.

January 13. J. W. Manning, *Azalea Hinodigiro.*
" " H. A. Jahn, Seedling Carnation No. 49.
" " N. F. Comley, Seedling Acacia.
March 23. Peter Fisher, Carnation Beacon.
" " " " " Seedling No. 500.
" " Mrs. J. M. Sears, Seedling Amaryllis.
" " James Crawshaw, New Asparagus.
" " Peirce Brothers, Seedling Carnation Governor Guild.
" " W. W. Edgar, *Adiantum Edgari.*
" " E. O. Orpet, Laelio-cattleya Coronis. (*L. cinnabarina* × *C. labiata.*)
May 5. W. W. Rawson, *Narcissus poetaz* Louise, Triumph, and Alsace.
June 2. T. C. Thurlow & Co., New Viburnum, *Viburnum Odama.*
June 15. T. C. Thurlow & Co., Seedling Peony Merrimac.
" " " " " " " Governor Guild.
" " E. J. Shaylor, Peony Aurore.
" " W. W. Rawson, *Gladiolus cardinalis Ackermanni.*
" " F. J. Rea, *Anchusa Italica* var. *Dropmore.*
" " Blue Hill Nurseries, *Fagus sylvatica purpurea major.*
June 22. Walter Hunnewell, Display of Rose Rubin.
July 7. Mrs. Frederick Ayer, Marguerite Queen Alexandra.
July 14. Joseph Tailby & Son, Hybrid Richardia Mrs. Joseph Tailby.
" " " " " *Lonicera tragophylla.*
August 4. Lager & Hurrell, Vanda Miss Agnes Joacquim.
" " E. F. Dwyer & Son, *Heuchera bryzoides.*
" 18. Blue Hill Nurseries, Hybrid *Rosa rugosa* Conrad F. Meyer.
" " Walter Hunnewell, *Senecio clivorum.*
September 5. Blue Hill Nurseries, *Lathyrus latifolius* Pink Gem.
" " H. H. Rogers, *Begonia grandiflora erecta cristata.*
" " A. F. Estabrook, Display of Foliage Plants.
" " Henry A. Dreer, *Adiantum scutum ramosum.*
" " " " " *Adiantum macrophyllum album striatum.*
" " " " " *Maranta Gouletti.*
" " " " " *Pteris Childsii.*
" " " " " *Asparagus Duchenii.*
October 10. Blue Hill Nurseries, *Actæa Japonica.*
November 2. H. A. Jahn, Carnation Jahn's White No. 1.
" " " " " Jahn's Crimson No. 2.

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November 2. William Sim, Vase of New Violet, Sport from Princess of Wales.
" " Cobbet School, Lynn, Display of Pompon Chrysanthemums.
" " F. R. Pierson Co., New Fern, Sport from *Nephrolepis Piersoni elegantissima.*
" " P. B. Robb, Seedling Cattleya Louise.
" " F. W. Fletcher Co., *Ficus altissima.*
" " E. O. Orpet, Seedling Cattleyas and Laelias.
" " Julius Roehrs Co., *Tillandsia Duvaliana.*
" " " " " New *Begonia Rex* The Marquis.
" " John Nilan, Seedling Impatiens.
" " J. S. Bailey, New Fern.
" " Louis Dupuy, New Chrysanthemum.
" 10. Oakes Ames, *Cymbidium elegans* (*Cyperorchis elegans*).

Votes of Thanks.

June 2. E. J. Shaylor, Five varieties of *Paeonia officinalis.*
" " C. W. Parker, Iris.
" " N. F. Comley, Seedling Magnolia.
June 15. Walter Hunnewell, Peonies.
" " C. W. Parker, *Iris pallida Dalmatica.*
July 7. Park Department of the City of Boston, Display of the Farquhar Rose, exhibited by J. W. Duncan.
August 4. E. F. Dwyer & Son, Seedling Phlox.
" " G. B. Gill, Vase of Dahlias.
" " E. L. Lewis, Sweet Peas.
" " C. W. Parker, Roses and *Lilium superbum.*
" " J. E. Hall, *Myrtus communis.*
" " W. W. Rawson, Display.
August 18. H. B. Watts, Pompon Asters.
September 5. W. W. Rawson, *Lilium Philippinense.*
" " Joseph Breck & Sons, Collection of Dahlias, Marigolds, etc.
" " R. & J. Farquhar & Co., Herbaceous Plants.
" " W. W. Rawson, Display of Dahlias.
" " G. B. Gill, Vase of Dahlias.
" G. E. Davenport, Seedling Dahlias.
October 10. N. H. Daniels, *Celosia cristata, bicolor* variety.

Cultural Awards.

Society's Bronze Medal.

March 23. Thomas Roland, Superior cultivation of *Mahernia odorata.*

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First Class Certificates of Merit.

January 24. Lowthorpe School of Horticulture, *Mahernia odorata.*
March 23. M. H. Walsh, Seedling Rambler Rose Delight.
May 5. Langwater Gardens, Vase of *Lilium candidum.*
June 15. W. N. Craig, *Miltonia vexillaria.*
July 7. Duncan Finlayson, Superior cultivation of *Dendrobium thyrsiflorum.*

Arthur H. Fewkes
Robert Cameron
William N. Craig
T. D. Hatfield
William Nicholson

Committee on Plants and Flowers.

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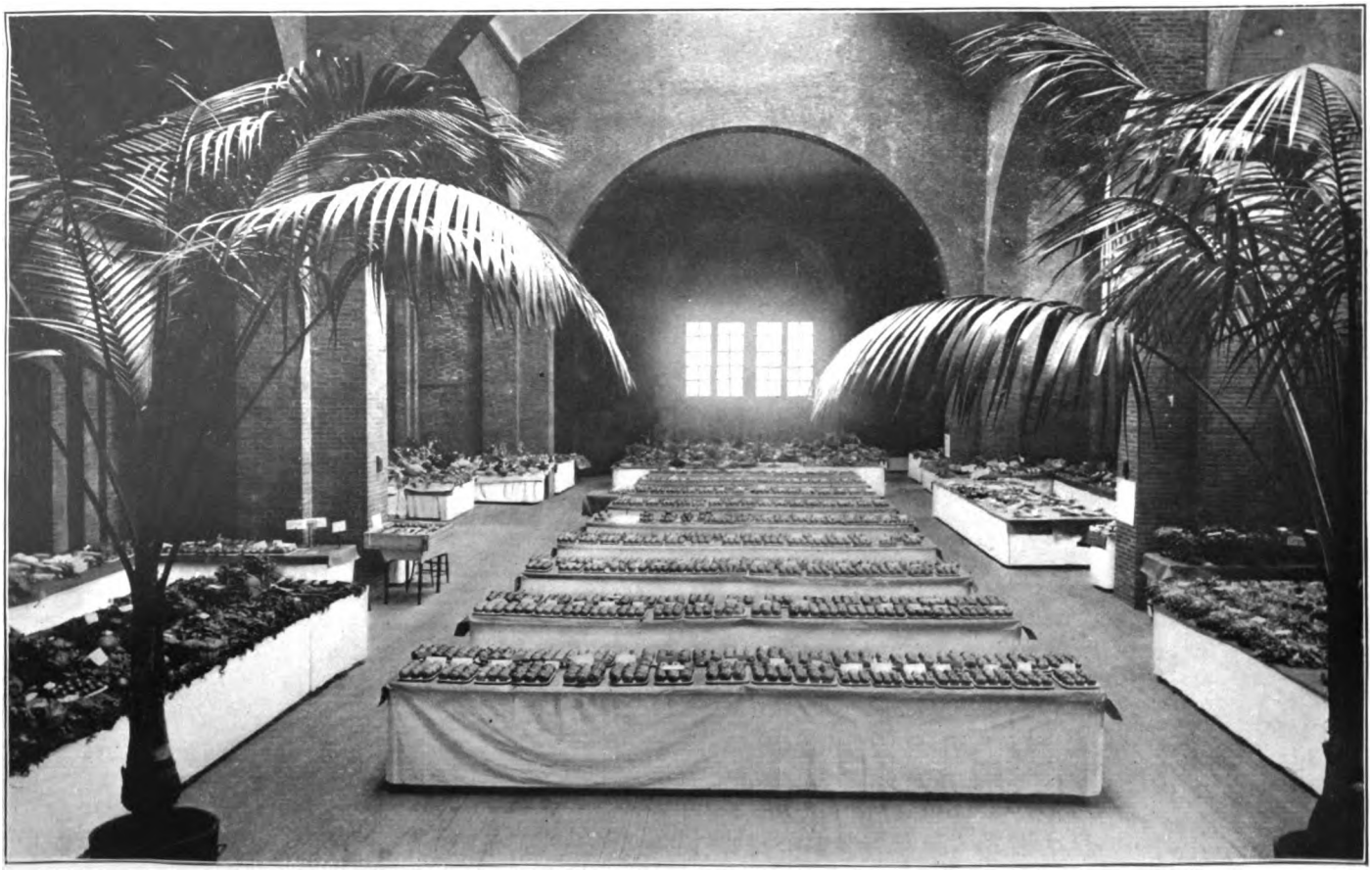

FRUIT AND VEGETABLE EXHIBITION, OCTOBER, 1906

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REPORT OF THE COMMITTEE ON FRUITS FOR THE YEAR 1906.

BY WILFRID WHEELER, CHAIRMAN.

To those who have been interested enough in the fruit growing industry of Massachusetts to follow its course during the past season rather unusual conditions have been noticed. The mild winter gave promise of a good crop of fruit, yet apples, plums, and bush fruits, owing to the severe weather late in the season, were not as abundant as was expected; particularly was this true in the case of plums of which at least three-quarters of the crop were ruined by the cold weather in March. Apples as a rule throughout the state were not as good as usual in quality; but there were exceptions to this, for in some places they were found above the average. These conditions are largely due to the care which the orchards receive; those trees which have been allowed to run down are each year bearing a poorer quality of fruit which has to be disposed of on the market, while the few trees that are cared for are constantly improving and returning to their owners, not only an increase in dollars and cents, but a great deal of satisfaction by showing that fruit can be grown in Massachusetts which surpasses the much renowned western article.

Massachusetts has never been considered a good peach growing state, principally on account of our changeable climate, but, judging from the appearance of the orchards which were visited by the chairman of the Fruit Committee this past year, peach growing in Massachusetts has a very bright future. This may perhaps be confined to certain localities, yet with the proper exposure peaches can be grown in this state better than in any other as far north as we are. The central and western parts of the state seem to be better adapted for peach growing, chiefly on account of the numerous hills which have a rocky, clay soil in which the peach thrives.

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Plums and apples also are found at their best in these sections; but Massachusetts as a whole presents more possibilities for the fruit grower than have ever yet been dreamed of. It has accessible markets; it has the soil and climate; and all it needs to produce abundantly and profitably are energy and capital. The ever increasing demand for good fruit both for home consumption and export ought to induce the expenditure of more capital in the fruit growing industry in Massachusetts. There are extensive areas all over the state which are admirably adapted to the growing of the best fruit. Our markets are constantly demanding a higher grade of fruit which can be supplied in better condition by our local growers than from the orchards of the West and South. One lamentable fact about fruit growing in Massachusetts is the lack of young men with power and brains who can take up this important industry. Most of the men who are now engaged in the work have grown up with their orchards; many of them are past the prime of life and cannot give their orchards the care which they formerly did. City life appeals more often to the young man and it should be the duty of every person who is interested in horticulture to use his or her influence to keep our young men in the country.

The strawberry crop was abundant this year and of good quality; yet many beds were hurt by the open winter. The other small fruits—currants, gooseberries, raspberries, and blackberries, where not hurt by the winter, yielded good crops.

Our exhibitions have been very successful the past year in regard to the number and variety of fruits shown, although the Strawberry Show was smaller than usual. At this exhibition several very interesting new varieties of the strawberry were shown; chief among which were three varieties by H. L. Crane of Westwood, unnamed seedlings numbered 196, 104, and 233. The chairman of the Fruit Committee afterward visited the farm of Mr. Crane and found that these strawberries in their growing condition exceeded the promise of those specimens which were at the exhibition.

Samuel H. Warren of Weston exhibited very fine Golden Gate, a variety of much promise, for which he was awarded the Benjamin H. Pierce Fund prize. The Hub was also exhibited for the first time. Other classes were well competed for, but the number of new varieties was not large.

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The midsummer exhibitions were well filled with fine exhibits. Never were apples so abundant as at the August 18 exhibition when there were over fifteen entries in class 298 for Williams, and competition was very close, as all specimens were well grown. Duchess of Oldenburgh apples were also very fine. The interest manifested in these summer exhibitions is rather local but they serve to bring out varieties of fruit which we would not get at any other time. Among some of the best exhibits during the summer were Sweet Bough apples by G. V. Fletcher; seldom are such large and fine specimens seen; collection of peaches by David Fiske; apples and plums by Elliott Moore; and currants and gooseberries by W. G. Kendall.

At the Annual Exhibition all classes were well competed for and in addition we were very fortunate in having an exhibition of fruit from the Massachusetts Agricultural College, consisting of over twenty plates, containing many varieties of plums, grapes, and peaches seldom seen on our tables. The specimens were well grown and great interest was shown in this exhibit for which a Silver Medal was awarded.

David L. Fiske exhibited two very fine collections of peaches, containing the following varieties: Foster, Oldmixon, Elberta, Heighly, Mountain Rose, Champion, Early Crawford, Crosby, Fitzgerald, Belle of Georgia, Late Crawford, and Stump. These were all very fine specimens. It is doubtful if any state in the Union could have shown a better collection of twelve varieties of peaches.

Grapes were not very abundant at this exhibition but some very fine Moore's Early and Green Mountain were shown by J. S. Chase.

The committee had spent a good deal of time in preparing for the Annual Fruit and Vegetable Exhibition, and a great deal of interest was manifested in this show, for it was the first for some years to be held separate from the flower exhibition. The main and small halls were well filled with both fruits and vegetables, the fruit occupying the center of the main hall and also the smaller hall. The exhibition was not only a success from the number of exhibits, but also from the great variety of fruit shown, and from the many interesting collections; chief among which were exhibits from the

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State Agricultural Colleges of Maine, Rhode Island, and Massachusetts; also from the State Board of Agriculture of North Carolina. These exhibitions proved to be one of the most attractive features of the show and were greatly admired by all.

The apples from Maine were among the best ever seen in the hall and contained such varieties as Akin, Arctic, Boiken, Hurlbut, Fallawater, Mother, Milding, Northwestern Greening, Nutting, Dudley, Rolf, and Hyslop Crab. Nutting and Dudley are both seedling apples from northern Aroostook County, Maine, and are welcome additions to the list of winter apples. Both are very fine in appearance and promise to become widely cultivated. The exhibit from Maine was awarded a Silver Medal.

The Rhode Island exhibit was entirely of apples and while not as well grown as those of Maine were good average specimens, and showed a range of over twenty varieties. This exhibit was awarded a Silver Medal.

The exhibit of apples from North Carolina rather surprised our local growers, for we are apt to think our northern grown apples are the best, but we still have a lot to learn in regard to apple growing if we are to be compete with our southern neighbors. These specimens from the South were not only large, well colored, and of good shape, but were of remarkably fine quality. They included such varieties as Northern Spy, Ben Davis, Gloria Mundi, Mother, Spitzenburg, Fallawater, Hoover, Virginia Beauty, Pewaukee, Stayman Winesap, York Imperial, and Buckingham. This exhibit received Honorable Mention.

The Massachusetts Agricultural College sent a very interesting exhibit of pears and apples grown on dwarf trees. This included many foreign pears as well as our more common varieties of apples. There were also very fine specimens of apples among the single entries. A Bronze Medal was awarded for the exhibit of fruit grown on dwarf trees.

These exhibits from the different State Agricultural Colleges are not only interesting and instructive, but they bring to our exhibitions a wider range and a greater variety of fruit than we could hope to get in any other way. It is very interesting to note at our exhibitions that different localities in the state suit different fruits. The apple, peach, and plum are grown better in the central and northern

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part of the state; grapes in the eastern part; and pears in the immediate vicinity of Boston; indeed, almost in Boston for the Roxbury, Dorchester, and Jamaica Plain districts may be said to carry off the greater number of our prizes for pears.

These latter named fruits were very abundant this season and we had some fine specimens on exhibition. Among these were a collection of over twenty varieties shown by E. B. Wilder; Bosc, Dana's Hovey, and Seckel by W. G. Kendall; Anjou, Sheldon, Lawrence, and Sieulle by F. W. Dahl; Duchess, Sheldon, and Marie Louise by E. Torrey. W. G. Kendall showed a few specimens of the Worden-Seckel pear which should be more widely grown as a garden pear; its beauty, flavor, and productiveness are unsurpassed.

The grape while not extensively cultivated for the market in this section is nevertheless a very popular garden fruit, and the exhibit this year proved that we can grow very fine specimens right here in Massachusetts. Among the most interesting exhibits was one by J. S. Chase consisting of fourteen varieties as follows: Brighton, Herbert, Wilder, Esther, McPike, Nector, Iona, Rogers No. 30, Delaware, Vergennes, Centennial, Ulster Prolific, Pocklington, and Prentiss. Mr. Chase also showed some very fine seedling grapes, Numbers 8, 20, 19, and 22.

Number 8 is the most promising of the lot and is to be recommended chiefly for its delicious lemon flavor. The grape is white, medium size, thin skin, and the pulp melting and juicy. The bunches exhibited were not very good shape.

Number 20 is an early grape, dark blue, fair quality, and bunch and berry of good size.

Number 22 is red in color, berry large, bunch medium, somewhat like Salem, good flavor, skin thick, and pulp melting.

Number 19, black in color, bunch small, berry large, good quality, is rather a promising variety.

Edward Farrar exhibited some very fine Pocklington, Niagara, and Worden grapes; W. G. Kendall, fine Isabella, Salem, and Delaware; and C. F. Hayward, fine Concord and Niagara.

One very interesting exhibit was from Solomon Ryder of Truro, Massachusetts. This contained many seedling apples and peaches, and a few pears from a tree supposed to have been planted by the

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Puritans at Truro two hundred years ago, the pears were small and of poor quality having probably reverted to the original type.

Peaches and plums were quite abundant considering how late this exhibition was held. G. V. Fletcher showed some fine specimens of both peaches and plums.

There have been but two exhibits of hot-house fruit during the year and the committee feels that it would be best to offer but one prize for these fruits, making this prize large enough to attract some exhibits of this character to at least one show in the year.

The Chrysanthemum Exhibition was rather disappointing as far as the fruit part of it was concerned; there were fewer entries than in former years and the fruit was not up to the standard of the October Exhibition. The committee feels that with the reduced appropriation for 1907 it would be better to eliminate the fruit from the Chrysanthemum Exhibition and use the money thus saved in making a success of the October Show.

The fruit market for 1906 has been generally very satisfactory; prices have kept up very well on pears, apples, and peaches, while small fruits, and particularly fancy stock, have sold above the average.

There have been ten exhibitions during the year at which fruit has been shown, and in these ten exhibitions there were one hundred and seventy-three classes open to competition; of these one hundred and sixty were competed for.

The committee's awards are as follows:

For Prizes and Gratuities	$1041.00
Three Silver Medals	22.50
One Bronze Medal	3.75
	1067.25
Appropriation for fruit, 1906	1275.00
Amount awarded	1067.25
Unexpended balance	207.75

The committee has also awarded

Two Votes of Thanks

One Honorable Mention

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PRIZES AND GRATUITIES AWARDED FOR FRUITS.

1906.

JANUARY 24.

E. B. Wilder, Vicar and Langelier Pears, Vote of Thanks.

SPRING EXHIBITION.

MARCH 23, 24, 25.

WINTER APPLES.— For the best collection, not less than four varieties: 1st, G. V. Fletcher, $5; 2d, A. E. Hartshorn, $4; 3d, C. M. Handley, $3.

PEONY EXHIBITION.

JUNE 15 AND 16.

Gratuity:—

G. V. Fletcher, Display of Marshall Strawberries, $3.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 22 AND 23.

Special Prizes.

Theodore Lyman Fund.

STRAWBERRIES.— Four quarts of any variety: 1st, G. V. Fletcher, Marshall, $12; 2d, S. H. Warren, Golden Gate, $10; 3d, I. E. Coburn, Marshall, $8; 4th, G. F. Wheeler, Minute Man, $6; 5th, John Ward, Marshall, $5.

Benjamin H. Pierce Fund.

STRAWBERRIES.— One quart of any seedling introduced since 1902: 1st, S. H. Warren, Golden Gate, $10.

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Regular Prizes.

STRAWBERRIES.— For the largest and best collection, not less than fifteen baskets of two quarts each and not less than five varieties:
1st, I. E. Coburn, $20; 2d, G. F. Wheeler, $15.
Ten baskets, not less than three varieties, two quarts each:
1st, G. V. Fletcher, $10; 2d, I. E. Coburn, $8; 3d, G. F. Wheeler, $5.
Five baskets, of five varieties, one quart each:
1st, G. V. Fletcher, $6; 2d, I. E. Coburn, $5; 3d, G. F. Wheeler, $4.
For the largest and best collection, not less than six varieties, twelve specimens of each variety, shown on plates:
1st, I. E. Coburn, $5.
Two quarts of Brandywine:
1st, I. E. Coburn, $3; 3d, G. F. Wheeler, $1.
Two quarts of Clyde:
1st, G. F. Wheeler, $3; 2d, John Ward, $2.
Two quarts of Haverland:
1st, I. E. Coburn, $3; 3d, G. F. Wheeler, $1.
Two quarts of Marshall:
1st, G. V. Fletcher, $3; 2d, I. E. Coburn, $2; 3d, John Ward, $1.
Two quarts of Minute Man:
1st, G. F. Wheeler, $3; 2d, I. E. Coburn, $2; 3d, John Ward, $1.
Two quarts of Sample:
1st, I. E. Coburn, $3; 2d, G. V. Fletcher, $2; 3d, G. F. Wheeler, $1.
Two quarts of Senator Dunlap:
2d, G. F. Wheeler, $2.
Two quarts of any other variety:
1st, S. H. Warren, Golden Gate, $3; 2d, G. V. Fletcher, Commonwealth, $2; 3d, G. F. Wheeler, Granville, $1.
One quart of any new variety, not previously exhibited:
1st, H. L. Crane, No. 196, $5; 2d, H. L. Crane, No. 104, $4; 3d, H. L. Crane, No. 233, $3; 4th, S. H. Warren, Hub, $2.
CHERRIES.— Two quarts of any variety:
1st, G. V. Fletcher, Guigue Noir, $3.
FOREIGN GRAPES.— Two bunches of any variety:
1st, W. C. Winter, Black Hamburg, $5; 2d, W. C. Winter, Muscat of Alexandria, $4.

JULY 7.

STRAWBERRIES.— Two quarts of Commonwealth:
1st, G. V. Fletcher, $3; 2d, B. M. Smith, $2; 3d, G. F. Wheeler, $1.
Two quarts of any other variety:
1st, B. M. Smith, North Shore, $4; 2d, G. F. Wheeler, President, $3.
RASPBERRIES.— Two quarts of any Red variety:
3d, W. J. Clemson, Cuthbert, $1.

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CHERRIES.— For the largest and best collection, not less than three varieties, two quarts of each:
1st, O. B. Kenrick, $5.
Two quarts of Black Tartarian:
1st, G. V. Fletcher, $3; 2d, C. S. Smith, $2.
Two quarts of Downer:
1st, C. S. Smith, $3.
Two quarts of any other variety:
1st, C. B. Travis, Black Eagle, $3; 2d, C. B. Travis, Elton, $2; 3d, G. V. Fletcher, Black Eagle, $1.
CURRANTS.— Two quarts of any Red variety:
1st, W. J. Clemson, Fay's, $3; 2d, G. V. Fletcher, La Versaillaise, $2; 3d, W. J. Clemson, La Versaillaise, $1.
Two quarts of any White variety:
1st, E. L. Lewis, White Grape, $3; 2d, G. V. Fletcher, White Grape, $2.

Gratuity:—

W. J. Clemson, Columbus Gooseberries, $1.

JULY 21.

RASPBERRIES.— Two quarts of any variety:
1st, Wilfrid Wheeler, Worthy, $3.
BLACKCAPS.— Two quarts of any variety:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, Columbian, $3.
CURRANTS.— Two quarts of any Red variety:
1st, W. G. Kendall, Wilder, $3; 2d, G. V. Fletcher, La Versaillaise, $2; 3d, D. L. Fiske, Red Cross, $1.
Two quarts of any White variety:
1st, H. R. Kinney, White Grape, $3; 2d, G. V. Fletcher, White Grape, $2; 3d, J. S. Chase, White Imperial, $1.
GOOSEBERRIES.— Two quarts of any variety of American origin:
1st, W. G. Kendall, Chatauqua, $3; 2d, J. S. Chase, Triumph, $2; 3d, F. H. Evans, Triumph, $1.
Two quarts of any variety of Foreign origin:
1st, W. J. Clemson, Industry, $3; 2d, G. L. Brown, Whitesmith, $2; 3d, Wilfrid Wheeler, Industry, $1.
For the largest and best collection, not less than three varieties, one quart each, American or Foreign varieties admissible:
1st, J. S. Chase, $3; 2d, W. J. Clemson, $2.

Gratuity:—

M. W. Chadbourne, Dorchester Blackberries and Red Astrachan Apples, $1.

AUGUST 4.

APPLES.— Red Astrachan:
1st, E. L. Wheeler, $3; 2d, M. W Chadbourne, $2; 3d, D. L. Fiske, $1.

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Sweet Bough:
1st, G. V. Fletcher, $3; 2d, C. B. Travis, $2; 3d, Elliott Moore, $1.
Yellow Transparent:
1st, Elliott Moore, $3; 2d, G. L. Brown, $2; 3d, J. S. Chase, $1.
Any other variety:
1st, Wilfrid Wheeler, Williams, $3; 2d, G. V. Fletcher, Williams, $2; 3d, J. L. Bird, Oldenburg, $1.

PEARS.— Giffard:
1st, J. L. Bird, $3; 2d, W. Heustis & Son, $2; 3d, W. C. Winter, $1.
Any other variety:
1st, W. Heustis & Son, Clapp's Favorite, $4; 2d, G. V. Fletcher, Clapp's Favorite, $3; 3d, W. J. Clemson, Clapp's Favorite, $2; 4th, J. L. Bird, Wilder, $1.

BLACKBERRIES.— Two quarts of Dorchester:
1st, M. W. Chadbourne, $3.
Any other variety:
1st, M. W. Chadbourne, Seedling, $3; 2d, Mrs. Frederick Ayer, Kittatinny, $2.

PEACHES.— Open culture, any variety:
1st, D. L. Fiske, Greensboro, $3; 2d, G. V. Fletcher, Greensboro, $2; 3d, D. L. Fiske, Sneed, $1.

Gratuity:—

E. L. Lewis, Collection of Plums, $1.

AUGUST 18.

APPLES.— Oldenburg:
1st, A. F. Estabrook, $3; 2d, H. A. Clark, $2; 3d, W. P. Milner, $1.
Chenango:
1st, C. F. Curtis, $3; 3d, G. L. Brown, $1.
Williams:
1st, C. F. Curtis, $3; 2d, Elliott Moore, $2; 3d, Wilfrid Wheeler, $1.
Any other variety:
1st, G. V. Fletcher, Sweet Bough, $3; 2d, Elliott Moore, Gravenstein, $2; 3d, T. Valentine, Sour Bough, $1.

PEARS.— Rostiezer:
1st, M. W. Chadbourne, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Clapp's Favorite:
1st, H. A. Clark, $3; 2d, S. S. Symmes, $2; 3d, Elliott Moore, $1.
Any other variety:
1st, G. V. Fletcher, Bartlett, $3; 2d, M. W. Chadbourne, Bartlett, $2; 3d, J. L. Bird, Tyson, $1.

PEACHES.— For the largest and best collection, not less than three varieties:
1st, D. L. Fiske, $4.

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Single plate of any variety:
1st, G. V. Fletcher, Greensboro, $3; 2d, D. L. Fiske, Greensboro, $2; 3d, D. L. Fiske, Carmen, $1.

PLUMS, JAPANESE,— Abundance:
1st, E. L. Lewis, $3; 2d, Elliott Moore, $2; 3d, S. S. Symmes, $1.

Burbank:
1st, S. S. Symmes, $3.

Any other variety:
1st, G. V. Fletcher, Bradshaw, $3; 2d, C. L. Wheeler, Red June, $2; 3d, W. P. Hutchinson, Lincoln, $1.

For the largest and best collection of Plums, not less than three varieties:
1st, E. L. Lewis, $4; 2d, Elliott Moore, $3; 3d, D. L. Fiske, $2.

BLACKBERRIES.— Two quarts of any variety:
1st, Mrs. E. M. Gill, Dorchester, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, Wilson's, $2; 3d, M. W. Chadbourne, Dorchester, $1.

FOREIGN GRAPES.— Two bunches of any variety:
1st, W. C. Winter, Black Hamburg, $3.

Gratuity:—

S. H. Warren, Display of Pan-American Strawberry, $2.

ANNUAL EXHIBITION OF PLANTS AND FLOWERS.

SEPTEMBER 5 AND 6.

Special Prizes.

Benjamin V. French Fund.

APPLES.— Gravenstein:
1st, J. L. Bird, $3; 2d, Elliott Moore, $2; 3d, W. Heustis & Son, $1.

Marshall P. Wilder Fund.

PEARS.— Bartlett:
1st, W. H. Derby, $3; 2d, J. M. Swett, $2; 3d, H. A. Clark, $1.

Society's Prizes.

PEARS.— Bartlett:
1st, William Milman, $5; 2d, W. H. Derby, $4; 3d, C. F. Curtis, $3; 4th, W. Heustis & Son, $2.

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Any other variety, twelve specimens:
1st, W. G. Kendall, Souvenir du Congres, $4; 2d, C. F. Curtis, Boussock, $3; 3d, M. W. Chadbourne, Sheldon, $2; 4th, C. W. Libby, Flemish Beauty, $1.

APPLES.— McIntosh:
1st, Elliott Moore, $3; 2d, W. P. Milner, $2.

Porter:
1st, Wilfrid Wheeler, $3; 2d, G. V. Fletcher, $2; 3d, J. L. Bird, $1.

Any other variety:
1st, Elliott Moore, Gravenstein, $4; 2d, H. A. Clark, Oldenburg, $3; 3d, W. G. Kendall, Maiden Blush, $2; 4th, G. V. Fletcher, Gravenstein, $1.

PEACHES.— Crawford's Late:
1st, D. L. Fiske, $3.

Oldmixon Freestone:
1st, D. L. Fiske, $3; 2d, O. B. Kenrick, $2; 3d, G. V. Fletcher, $1.

Elberta:
1st, W. Heustis & Son, $3; 2d, D. L. Fiske, $2; 3d, G. V. Fletcher, $1.

Carman:
1st, F. H. Evans, $3.

Any other variety:
1st, D. L. Fiske, Champion, $4; 2d, C. F. Curtis, Champion, $3; 3d, D. L. Fiske, Foster, $2; 4th, W. P. Hutchinson, Waddell, $1.

For the best six varieties suitable for the New England market, twelve specimens of each:
1st, D. L. Fiske, $8; 2d, D. L. Fiske, $6.

PLUMS.— Collection of not less than four varieties, twelve specimens of each:
1st, W. P. Hutchinson, $4; 2d, Elliott Moore, $3; 3d, G. V. Fletcher, $2; 4th, O. B. Kenrick, $1.

Lombard:
1st, J. L. Bird, $3; 2d, G. V. Fletcher, $2; 3d, O. B. Kenrick, $1.

Any other variety:
1st, G. V. Fletcher, Yellow Egg, $3; 2d, O. B. Kenrick, Bradshaw, $2; 3d, G. V. Fletcher, Bradshaw, $1.

JAPANESE PLUMS.— Collection of not less than four varieties, twelve specimens of each:
3d, D. L. Fiske, $2.

Single plate of any other variety:
1st, E. L. Wheeler, Hale, $3.

NATIVE GRAPES.— Green Mountain:
1st, J. S. Chase, $3; 2d, W. G. Kendall, $2.

Moore's Early:
1st, J. S. Chase, $3; 2d, E. L. Lewis, $2.

Moore's Diamond:
1st, C. W. Libby, $3; 2d, J. S. Chase, $2.

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Any other variety:
1st, W. G. Kendall, Worden, $3; 2d, C. W. Libby, Lucille, $2; 3d, J. S. Chase, Rogers No. 30, $1.

Gratuity:—

Massachusetts Agricultural College, Display of Fruit, Silver Medal.

Annual Exhibition of Fruits and Vegetables.

October 10 and 11.

Special Prizes.

Theodore Lyman Fund.

Apples.— Fletcher Russet:
1st, G. V. Fletcher, $3; 2d, W. H. Teele, $2; 3d, C. F. Curtis, $1.
Tompkins King:
1st, E. R. Farrar, $3; 2d, D. L. Fiske, $2; 3d, Elliott Moore, $1.
Fameuse:
1st, G. V. Fletcher, $3; 2d, E. E. Cole, $2; 3d, M. W. Chadbourne, $1.
Any other variety:
1st, C. E. Swain, McIntosh, $3; 2d, Isaac Locke, Gravenstein, $2; 3d, E. M. Bruce, Holland Pippin, $1.
For the best six varieties of commercial apples, twelve of each:
1st, Elliott Moore, $5; 2d, G. V. Fletcher, $4.

Samuel Appleton Fund.

Apples.— Baldwin:
1st, E. M. Bruce, $3; 2d, Elliott Moore, $2; 3d, E. E. Cole, $1.
Hubbardston:
1st, H. W. Brigham, $3; 2d, G. F. Wheeler, $2; 3d, E. M. Bruce, $1.
Pears.— Bosc:
1st, G. V. Fletcher, $3; 2d, W. G. Kendall, $2; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $1.
Sheldon:
1st, Elbridge Torrey, $3; 2d, H. A. Clark, $2; 3d, S. S. Symmes, $1.

Benjamin V. French Fund.

Apples.— Rhode Island Greening:
1st, Massachusetts Agricultural College, $3; 2d, A. E. Hartshorn, $2; 3d, G. V. Fletcher, $1.

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Marshall P. Wilder Fund.

PEARS.— Anjou:
1st, E. M. Bruce, $3; 2d, F. W. Dahl, $2; 3d, William Milman, $1.
GRAPES.— Concord, twelve bunches:
1st, C. F. Hayward, $3; 2d, E. R. Lincoln, $2; 3d, E. R. Farrar, $1.
Worden:
1st, E. R. Farrar, $3; 2d, J. S. Chase, $2; 3d, W. G. Kendall, $1.

Society's Prizes.

APPLES.— For the best six varieties of dessert apples, twelve specimens of each:
1st, G. V. Fletcher, $5; 2d, Elliott Moore, $4.
Rome Beauty:
1st, Mrs. S. M. Davis, $3.
McIntosh:
1st, E. M. Bruce, $3; 2d, Isaac Locke, $2; 3d, Massachusetts Agricultural College, $1.
Maiden Blush:
1st, H. R. Kinney, $3; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $2; 3d, W. G. Kendall, $1.
Sutton:
1st, Massachusetts Agricultural College, $3; 2d, H. A. Clark, $2; 3d, D. L. Fiske, $1.
Washington Strawberry:
1st, Elliott Moore, $3; 2d, E. B. Wilder, $2; 3d, Miss S. W. Story, $1.
Wealthy:
2d, E. R. Teele, $2; 3d, C. M. Handley Estate, $1.
Any other variety:
1st, E. M. Bruce, Bellflower, $3; 2d, Wilfrid Wheeler, Porter. $2; 3d, Massachusetts Agricultural College, Fall Pippin, $1.
CRAB APPLES. Hyslop, twenty-four specimens:
1st, Elliott Moore, $3; 2d, C. M. Handley, $2; 3d, W. H. Teele, $1.
Any other variety:
2d, W. A. Green, Transcendent, $1.
PEARS.— Bosc, twenty-four specimens:
1st, W. G. Kendall, $5; 2d, H. A. Clark, $4; 3d, G. V. Fletcher, $3; 4th, W. H. Derby, $2.
Collection of not less than four varieties of the best table pears other than Bosc or Bartlett:
1st, F. W. Dahl, $6; 2d, E. B. Wilder, $5; 3d, J. L. Bird, $4; 4th, G. V. Fletcher, $3; 5th, Mrs. C. C. Converse and Mrs. Lester Leland, $2.
Angouleme:
1st, Elbridge Torrey, $3; 2d, W. H. Derby, $2; 3d, F. W. Dahl, $1.

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Clairgeau:
1st, W. H. Derby, $3; 2d, F. W. Damon, $2; 3d, C. F. Curtis, $1.
Comice:
1st, J. L. Bird, $3; 2d, G. V. Fletcher, $2; 3d, E. R. Lincoln, $1.
Dana's Hovey:
1st, F. W. Damon, $3; 2d, G. V. Fletcher, $2; 3d, W. G. Kendall, $1.
Diel:
1st, F. W. Damon, $3; 2d, E. B. Wilder, $2; 3d, C. E. Swain, $1.
Fulton:
1st, C. F. Curtis, $3; 2d, F. A. Kelley, $2; 3d, F. L. Weston, $1.
Lawrence:
1st, F. W. Dahl, $3; 2d, W. A. Green, $2; 3d, E. B. Wilder, $1.
Louise Bonne of Jersey:
1st, W. H. Derby, $3; 2d, E. B. Wilder, $2.
Merriam:
1st, W. Heustis & Son, $3; 2d, F. W. Damon, $2; 3d, C. F. Curtis, $1.
Onondaga:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $3; 2d, J. L. Bird, $2; 3d, C. B. Travis, $1.
Seckel:
1st, F. W. Damon, $3; 2d, W. G. Kendall, $2; 3d, G. V. Fletcher, $1.
Any other variety:
1st, Elbridge Torrey, Marie Louise, $5; 2d, J. L. Bird, Urbaniste, $4; 3d, J. L. Bird, Paradise of Autumn, $3; 4th, C. E. Swain, Marie Louise, $2; 5th, F. W. Dahl, Vicar, $1.

QUINCES.— Any variety:
1st, G. V. Fletcher, Orange, $3; 2d, Isaac Gragg, Orange, $2; 3d, G. V. Fletcher, Champion, $1.

PEACHES.— Any variety:
1st, G. V. Fletcher, Elberta, $3; 2d, G. V. Fletcher, Oldmixon, $2; 3d, G. V. Fletcher, Coolidge's Favorite, $1.

PLUMS.— Any variety:
1st, W. P. Hutchinson, Monarch, $3; 2d, G. V. Fletcher, Yellow Egg, $2; 3d, G. V. Fletcher, Bradshaw, $1.

NATIVE GRAPES.— For the largest and best collection, not less than six varieties of six bunches each:
1st, J. S. Chase, $5.
Six bunches of Brighton:
1st, C. W. Libby, $3; 2d, J. S. Chase, $2; 3d, E. R. Farrar, $1.
Six bunches of Delaware:
1st, W. G. Kendall, $3; 2d, J. S. Chase, $2; 3d, E. R. Farrar, $1.
Six bunches of Herbert:
1st, C. W. Libby, $3; 2d, J. S. Chase, $2.
Six bunches of Lindley:
1st, J. S. Chase, $3; 2d, C. W. Libby, $2.
Six bunches of Niagara:
1st, C. F. Hayward, $3; 2d, E. R. Farrar, $2; 3d, C. Sander, $1.

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Six bunches of Pocklington:
1st, E. R. Farrar, $3; 2d, H. R. Kinney, $2; 3d, F. H. Jackman, $1.
Six bunches of Prentiss:
1st, J. S. Chase, $3.
Six bunches of Wilder:
1st, J. S. Chase, $3.
Six bunches of any other variety:
1st, C. Sander, Moore's Diamond, $4; 2d, W. G. Kendall, Isabella, $3; 3d, C. W. Libby, Moore's Diamond, $2; 4th, W. G. Kendall, Salem, $1.

Gratuities:—

E. B. Wilder, Collection of Pears, $5.
G. V. Fletcher, Collection of Peaches, $2.
Maine Agricultural Experiment Station, Collection of Apples, Silver Medal.
Rhode Island Agricultural Experiment Station, Collection of Apples, Silver Medal.
Massachusetts Agricultural College, Collection of Apples and Pears grown on dwarf trees. Bronze Medal.
Solomon Ryder, Exhibit of Apples, Pears, etc., Vote of Thanks.

Chrysanthemum Show.

November 2, 3, 4.

Benjamin V. French Fund.

Apples.— Baldwin:
1st, A. E. Hartshorn, $3; 2d, E. M. Bruce, $2; 3d, Mrs. A. W. Blake, $1.
Rhode Island Greening:
1st, A. E. Hartshorn, $3; 2d, Elliott Moore, $2; 3d, G. V. Fletcher, $1.

Society's Prizes.

Apples.— For the best four varieties of dessert apples, twelve specimens of each:
1st, Elliott Moore, $5; 2d, G. V. Fletcher, $4; 3d, A. E. Hartshorn, $3.
Hunt Russet:
1st, G. F. Wheeler, $3.
McIntosh:
1st, T. E. Mentzer, $3; 2d, C. C. Rice, $2; 3d, E. M. Bruce, $1.
Northern Spy.
1st, G. V. Fletcher, $3; 2d, H. A. Clark, $2; 3d, A. E. Hartshorn, $1.

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Roxbury Russet:
1st. W. O. Allen, $3; 2d, A. E. Hartshorn, $2; 3d, J. L. Bird, $1.
Wagener:
1st, W. H. Spooner, $3.
Any other variety:
1st, John Coolidge, King, $3; 2d, William Costain, King, $2; 3d, Elliott Moore, Red Canada, $1.

PEARS.— For the best five varieties of Winter Pears, twelve specimens of each:
1st, F. W. Dahl, $6; 2d, E. B. Wilder, $5; 3d, J. L. Bird, $4; 5th, M. W. Chadbourne, $2.
Angouleme:
1st, Elbridge Torrey, $3; 2d, F. W. Dahl, $2; 3d, J. L. Bird, $1.
Anjou:
1st, F. W. Dahl, $3; 2d, William Milman, $2; 3d, E. M. Bruce, $1.
Bosc:
1st, J. B. Shurtleff, Jr., $3; 2d, G. V. Fletcher, $2; 3d, E. B. Wilder, $1.
Dana's Hovey:
1st, G. V. Fletcher, $3; 2d, J. L. Bird, $2; 3d, C. E. Swain, $1.
Seckel:
1st, G. V. Fletcher, $3; 2d, J. L. Bird, $2.
Vicar:
1st, F. W. Dahl, $3; 2d, E. B. Wilder, $2; 3d, Joseph Burnett, $1.
Any other variety:
1st, J. L. Bird, Comice, $4; 2d, F. W. Dahl, Clairgeau, $3; 3d, John Curley, Diel, $2; 4th, C. E. Swain, Lawrence, $1.

QUINCES.— Orange:
1st, G. V. Fletcher, $3.
Champion:
1st, G. V. Fletcher, $3; 2d, Manuel de Souza, $2; 3rd, E. M. Bruce, $1.
Any other variety:
2d, G. L. Brown, Pear, $1.

FOREIGN GRAPES:— Two bunches of any variety:
1st, W. C. Winter, $5.

CRANBERRIES.— Half-peck:
1st, H. J. Thayer, Bugles, $3; 2d, H. J. Thayer, Howe's, $2; 3d, H. J. Thayer, Early Black, $1.

Gratuity:—

G. V. Fletcher, Collection of Apples, $1.

WILFRID WHEELER
CHARLES F. CURTIS
J. WILLARD HILL
Committee on Fruits.

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FRUIT AND VEGETABLE EXHIBITION, OCTOBER, 1906

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REPORT OF THE COMMITTEE ON VEGETABLES FOR THE YEAR 1906.

BY WARREN W. RAWSON, CHAIRMAN.

The exhibitions of vegetables the past year have been very satisfactory and the offering of more and larger prizes has tended to bring out exhibits that for quantity and quality far exceeded those of previous years.

The members of the committee feel that their efforts have been well rewarded and we are especially proud of the October and November exhibits which were the best ever exhibited by the Society.

Very few new varieties of vegetables have been brought out but there has been a marked improvement in the old varieties which have attained a very high standard of excellence. There have been very few articles of inferior quality exhibited and the competition for prizes has been closer than ever before.

We regret very much that the prizes for next year have been reduced as we feel that in order to keep up the interest which has been shown the past year they should be increased rather than diminished. We also feel that the cutting out of many of the exhibitions will not be for the best interests of the Society for it is bound to reduce the number of exhibitors as well as to lessen the size of the exhibits.

It is our earnest desire that the standard of excellence attained the past year will be kept up but we feel this to be impossible with less exhibitions and smaller premiums.

The committee of 1906 will assist in every way possible the committee of 1907 and hope they will take up the matter where we have left it and be more successful in obtaining appropriations for the following year.

As a committee we have not been fairly treated and feel that the

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vegetable department deserves as much consideration as any other, but no more. It is the department which is generally recognized as the most beneficial to the people at large whether looked upon in a private or commercial sense.

The amount of prizes offered for 1906 was $1200.00. Of this $1125.00 was awarded to exhibitors as premiums, leaving a surplus of $75.

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

1906.

January 24 and 25.

Cauliflowers.— Four specimens:
1st, E. R. Teele, $3; 2d, C. M. Handley Estate, $2; 3d, W. H. Teele, $1.

Celery.— Four roots:
1st, A. E. Hartshorn, $3; 2d, W. Heustis & Son, $2; 3d, W. H. Teele, $1.

Lettuce.— Four heads:
1st, G. D. Moore, $3; 2d, A. E. Hartshorn, $2.

Mushrooms.— Twenty-four specimens:
1st, H. A. Stevens Co., $3.

Parsley.— Two quarts:
1st, A. E. Hartshorn, $2; 2d, Mrs. C. C. Converse & Mrs. Lester Leland, $1.

Radishes.— Four bunches:
1st, A. E. Hartshorn, $3.

Salsify.— Twelve specimens:
1st, W. Heustis & Son, $3.

Spring Exhibition.

March 23, 24, 25.

William J. Walker Fund.

Cucumbers.— Pair:
1st, C. H. Metcalf, $3; 2d, W. W. Rawson, $2; 3d, J. W. Shaw, $1.

Dandelion.— Peck:
1st, A. E. Hartshorn, $3.

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LETTUCE.— Four heads:
1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, H. R. Kinney, $1.
MUSHROOMS.— Twelve specimens:
1st, H. A. Stevens Co., $3; 2d, H. R. Kinney, $2.
PARSLEY.— Four quarts:
1st, W. J. Clemson, $3; 2d, A. E. Hartshorn, $2.
RADISHES.— Four bunches of Turnip Rooted:
1st, A. E. Hartshorn, $3; 2d, W. W. Rawson, $2.
RHUBARB.— Twelve stalks:
1st, H. R. Kinney, $3; 2d, W. H. Derby, $2; 3d, Anson Wheeler, $1.
TOMATOES.— Twelve specimens:
1st, C. F. Newhall, $3; 2d, W. W. Edgar, $2.
COLLECTION OF VEGETABLES.— Not less than four varieties:
1st, H. R. Kinney, $5; 2d, A. E. Hartshorn, $3.

MAY 5.

William J. Walker Fund.

ASPARAGUS.— Four bunches, twelve stalks each:
1st, A. E. Hartshorn, $3; 2d, Edwin Parker, $2; 3d, W. J. Clemson, $1.
BEETS.— Twelve specimens:
1st, A. E. Hartshorn, $3.
CUCUMBERS.— Pair of White Spine:
1st, A. E. Hartshorn, $3; 2d, E. M. Bruce, $2.
Any other variety:
1st, C. H. Metcalf, $3; 2d, A. E. Hartshorn, $2.
DANDELION.— Peck:
1st, J. B. Shurtleff, Jr., $3; 2d, A. E. Hartshorn, $2.
LETTUCE.— Four heads:
1st, A. E. Hartshorn, $4.
PARSLEY.— Four quarts:
1st, Mrs. A. W. Blake, $3; 2d, A. E. Hartshorn, $2; 3d, W. J. Clemson, $1.
RADISHES.— Four bunches:
1st, A. E. Hartshorn, $3; 2d, Edwin Parker, $2; 3d, Vincent Buitta, $1.
RHUBARB.— Twelve stalks, open culture:
1st, Edwin Parker, $3; 2d, W. J. Clemson, $2.
SPINACH.— Peck:
1st, A. E. Hartshorn, $3.
COLLECTION OF VEGETABLES.— Not less than four varieties:
1st, W. J. Clemson, $5; 2d, Edwin Parker, $3.

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JUNE 2.

Theodore Lyman Fund.

ASPARAGUS.— Four bunches, twelve stalks each:
1st, Edwin Parker, $3; 2d, G. F. Wheeler, $2; 3d, A. E. Hartshorn, $1.
BEETS.— Twelve specimens, open culture:
1st, Mrs. A. W. Blake, $3.
CARROTS.— Four bunches:
2d, A. E. Hartshorn, $2.
CUCUMBERS.— Pair:
1st, B. M. Lincoln, $4; 2d, C. W. Metcalf, $3; 3d, G. D. Moore, $2; 4th, A. E. Hartshorn, $1.
LETTUCE.— Four heads:
1st, G. D. Moore, $4; 2d, E. L. Lewis, May King, $3; 3d, E. L. Lewis, Tennisball, $2; 4th, E. L. Lewis, Big Boston, $1.
MUSHROOMS.— Twenty-four specimens:
1st, Mrs. Alice Warburton, $3.
RADISHES.— Four bunches:
1st, Edwin Parker, $3; 2d, E. L. Lewis, $2; 3d, E. L. Lewis, $1.
RHUBARB.— Twelve stalks, open culture:
1st, Edwin Parker, $3; 2d, Mrs. A. W. Blake, $2; 3d, Mrs. Alice Warburton, $1.
SPINACH.— Peck:
1st, Edwin Parker, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.
COLLECTION OF VEGETABLES.— Not less than four varieties, decorative arrangement to be considered:
1st, W. J. Clemson, $5; 2d, Edwin Parker, $3.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 22 AND 23.

BEETS.— Twelve Turnip Rooted, open culture:
1st, W. W. Rawson, $3; 2d, Edwin Parker, $2; 2d, W. Heustis & Son, $1.
CABBAGES.— Four specimens:
1st, W. W. Rawson, Early Spring, $3; 2d, W. Heustis & Son, Wakefield, $2; 3d, W. Heustis & Son, Early Spring, $1.
CARROTS.— Four bunches:
1st, A. E. Hartshorn, $3.
CUCUMBERS.— Four specimens:
1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, B. M. Lincoln, $1.

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LETTUCE.— Four heads:
1st, Edwin Parker, Black Seeded Tennisball, $3; 2d, E. L. Lewis, Deacon, $2; 3d, E. L. Lewis, Immensity, $1.
PEAS.— Gradus, half-peck.
1st, William Whitman, $3; 2d, Mrs. J. L. Gardner, $2; 3d, W. J. Clemson, $1.
Eclipse or Nott's Excelsior:
1st, W. J. Clemson, $3; 2d, I. E. Coburn, $2; 3d, E. L. Lewis, $1.
Any other variety:
1st, W. J. Clemson, $3; 2d, E. L. Lewis, $2; 3d, Mrs. Alice Warburton, $1.
ONIONS.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, Edwin Parker, $2; 3d, W. W. Rawson, $1.
COLLECTION OF VEGETABLES.— Not less than six varieties, decorative arrangement to be considered:
1st, Edwin Parker, $5; 2d, W. J. Clemson, $4.

JULY 7.

BEANS.— Half-peck of Wax:
1st, Edwin Parker, $3; 2d, W. W. Rawson, $2; 3d, Joseph Thorpe, $1.
Half-peck of Green:
1st, W. W. Rawson, $3; 2d, G. D. Moore, $2; 3d, Joseph Thorpe, $1.
BEETS.— Twelve specimens:
1st, E. L. Lewis, $3; 2d, W. W. Rawson, $2; 3d, W. Heustis & Son, $1.
CABBAGES.— Four specimens:
1st, W. Heustis & Son, $3; 2d, W. Heustis & Son, $2; 3d, G. D. Moore, $1.
CUCUMBERS.— Four specimens:
1st, G. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, T. Valentine, $1.
LETTUCE.— Four heads:
1st, T. Valentine, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
ONIONS.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, E. L. Lewis, $2; 3d, Edwin Parker, $1.
PEAS.— Half-peck, late varieties:
1st, Joseph Thorpe, $3; 2d, Mrs. Alice Warburton, $2; 3d, Mrs. Alice Warburton, $1.
SQUASHES.— Summer, Long Warted, four specimens:
1st, T. Valentine, $3; 2d, E. L. Lewis, $2.
Summer Scallop, four specimens:
1st, W. Heustis & Son, $3.
TOMATOES.— Twelve specimens:
1st, Wilfrid Wheeler, $3; 2d, Wilfrid Wheeler, $2; 3d, Mrs. Frederick Ayer, $1.

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COLLECTION OF VEGETABLES.— Not less than eight varieties; decorative arrangement to be considered:
1st, W. J. Clemson, $8; 2d, E. L. Lewis, $5; 3d, T. Valentine, $4; 4th, Edwin Parker, $3.

Gratuities:—

A. E. Hartshorn, Summer Squashes, $1.
W. W. Rawson, Carrots, $1.

JULY 21.

BEANS.— Horticultural, four quarts in pod:
1st, Joseph Thorpe, $2; 2d, E. L. Lewis, $1.
BEETS.— Twelve specimens:
1st, E. L. Lewis, $3; 2d, W. Heustis & Son, $2; 3d, Edwin Parker, $1.
CABBAGES.— Four specimens:
1st, W. Heustis & Son, $3; 2d, W. Heustis & Son, $2; 3d, A. E. Hartshorn, $1.
CARROTS.— Twelve specimens:
1st, E. L. Lewis, $3; 2d, W. W. Rawson, $2; 3d, W. J. Clemson, $1.
ONIONS.— Twelve specimens, dry:
1st, J. J. Lyons, $3; 2d, W. W. Rawson, $2; 3d, E. L. Lewis, $1.
SQUASHES.— Summer, three specimens:
1st, A. E. Hartshorn, $3; 2d, T. Valentine, $2; 3d, E. L. Lewis, $1.
Scallop, three specimens:
1st, E. L. Lewis, $3; 2d, W. Heustis & Son, $2; 3d, Mrs. Alice Warburton, $1.
TOMATOES.— Twelve specimens:
1st, Wilfrid Wheeler, Stone, $3; 2d, Wilfrid Wheeler, Eclipse, $2; 3d, W. W. Rawson, $1.

Gratuity:—

Vincent Buitta, Collection, $3.

AUGUST 4.

BEANS.— Horticultural, four quarts, in pod:
1st, Aaron Low, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
BEETS.— Twelve specimens:
1st, E. L. Lewis, $3; 2d, Edwin Parker, $2; 3d, E. L. Lewis, $1.
CABBAGES.— Four specimens:
1st, W. Heustis & Son, $3; 2d, A. E. Hartshorn, $2; 3d, W. Heustis & Son, $1.

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CARROTS.— Twelve specimens:
1st, Edwin Parker, $3; 2d, E. L. Lewis, $2; 3d, E. L. Lewis, $1.
ONIONS.— Twelve specimens, dry:
1st, W. H. Derby, $3; 2d, E. L. Lewis, $2; 3d, J. J. Lyons, $1.
SQUASHES.— Marrow, three specimens:
1st, T. Valentine, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
SWEET CORN.— Twelve ears:
1st, G. F. Wheeler, $3; 2d, E. L. Lewis, $2; 3d, E. L. Lewis, $1.
TOMATOES.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, Wilfrid Wheeler, $2; 3d, William Sim, $1.

Gratuities:—

Vincent Buitta, Collection, $2.
John Ryan, Collection, $1.

AUGUST 18.

BEANS.— Two quarts, shelled:
1st, E. L. Lewis, $3; 2d, Mrs. Alice Warburton, $2; 3d, Joseph Thorpe, $1.
CABBAGES.— Three specimens:
1st, A. E. Hartshorn, $3; 2d, W. Heustis & Son, $2; 3d, Vincent Buitta, $1.
CELERY.— Four roots of any variety.
1st, Joseph Thorpe, $3; 2d, W. Heustis & Son, $2; 3d, E. L. Lewis, $1.
MELONS.— Four specimens:
1st, William Sim, $3; 2d, A. E. Hartshorn, $2; 3d, Mrs. A. W. Blake, $1.
ONIONS.— Twelve specimens:
1st, E. L. Lewis, $3; 2d, T. Valentine, $2; 3d, W. J. Clemson, $1.
PEPPERS.— Twelve specimens:
1st, Edwin Parker, $3; 2d, E. L. Lewis, Chinese Giant, $2; 3d, E. L. Lewis, Ruby King, $1.
POTATOES.— Twelve specimens of any variety:
1st, E. L. Lewis, Rose, $3; 2d, E. L. Lewis, Hebron, $2; 3d, E. L. Lewis, Aroostook, $1.
SQUASHES.— Marrow, three specimens:
1st, J. P. Wyman, $3; 2d, A. E. Hartshorn, $2; 3d, Edwin Parker, $1.
SWEET CORN.— Twelve ears of any variety:
1st, E. L. Lewis, Excelsior, $3; 2d, E. L. Lewis, Market, $2; 3d, W. J. Clemson, $1.
TOMATOES.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, Joseph Thorpe, $2; 3d, E. L. Lewis, $1.

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COLLECTION OF VEGETABLES.— Not less than six varieties, decorative arrangement to be considered:
1st, E. L. Lewis, $8; 2d, Edwin Parker, $5; 3d, Vincent Buitta, $3.

Gratuity:—

William Sim, Tomatoes, $1.

ANNUAL EXHIBITION OF PLANTS AND FLOWERS.

SEPTEMBER 5 AND 6.

BEANS.— Lima, two quarts:
1st, Mrs. A. W. Blake, $3; 2d, Mrs. E. M. Gill, $2; 3d, Edwin Parker, $1.
BEETS.— Twelve specimens:
1st, W. W. Rawson, $3; 2d, E. L. Lewis, $2; 3d, Edwin Parker, $1.
CABBAGES.— Three of any variety, trimmed:
1st, T. Valentine, $3; 2d, W. Heustis & Son, $2.
CELERY.— Four roots:
1st, W. Heustis & Son, $3; 2d, T. Valentine, $2; 3d, Edwin Parker, $1.
MELONS.— Sweet:
1st, E. L. Lewis, Montreal, $3; 2d, E. L. Lewis, Maule's Modern, $2; 3d, E. L. Lewis, Tip Top, $1.
WATERMELONS:
1st, Edwin Parker, $3.
NATIVE MUSHROOMS.— Named collection of not less than five edible varieties:
1st, G. E. Morris, $3.
ONIONS.— Twelve specimens:
1st, E. L. Lewis, $3; 2d, T. Valentine, $2.
PARSNIPS.— Twelve specimens:
1st, W. W. Rawson, $3; 2d, E. L. Lewis, $2.
SQUASHES:
1st, W. W. Rawson, $3; 2d, T. Valentine, $2; 3d, Charles Scully, $1.
TOMATOES.— Twelve specimens:
1st, Edwin Parker, Stone, $3; 2d, Edwin Parker, Jewell, $2; 3d, C. W. Libby, Jewell, $1.
COLLECTION OF VEGETABLES.—Not less than six varieties, decorative arrangement to be considered:
1st, E. L. Lewis, $8; 2d, Edwin Parker, $5.

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Annual Exhibition of Fruits and Vegetables.

October 10 and 11.

Beets.— Twelve specimens:
1st, W. W. Rawson, $3; 2d, W. H. Derby, $2; 3d, Edwin Parker, $1.
Brussels Sprouts.— Half-peck:
1st, A. E. Hartshorn, $3; 2d, F. Heeremans, $2; 3d, W. J. Clemson, $1.
Cabbages.— Three Drumhead, trimmed:
1st, W. J. Clemson, $3; 2d, E. L. Lewis, $2; 3d, W. W. Rawson, $1.
Three Savoy, trimmed:
1st, E. L. Lewis, $3; 2d, W. W. Rawson, $2; 3d, Mrs. J. L. Gardner, $1.
Carrots.— Twelve Long Orange:
1st, E. L. Lewis, $3.
Twelve Intermediate:
1st, Mrs. Alice Warburton, $3; 2d, Edwin Parker, $2; 3d, W. J. Clemson, $1.
Cauliflowers.— Four specimens:
1st, W. H. Teele, $4; 2d, C. M. Handley, $3; 3d, DeSouza Brothers, $2.
Celery.— Best kept during the exhibition, four roots of Paris Golden:
1st, W. Heustis & Son, $3; 2d, Joseph Thorpe, $2; 3d, C. H. Metcalf, $1.
Any other variety:
1st, W. Heustis & Son, $3; 2d, Edwin Parker, $2; 3d, J. A. Nixon, $1.
Corn.— Sweet, twelve ears:
1st, F. Heeremans, $3; 2d, A. C. Wakefield, $2; 3d, E. L. Lewis, $1.
Cucumbers.— Pair of White Spine:
1st, C. H. Metcalf, $4; 2d, W. W. Rawson, $3; 3d, Frank Pierce, $2.
Pair of any other variety:
1st, Mrs. R. C. Winthrop, $3; 2d, Giraud Foster, $2; 3d, Frank Pierce, $1.
Culinary Herbs, Green.— Collection, named:
1st, J. A. Nixon, $3; 2d, Edwin Parker, $2.
Egg Plants.— Four Round Purple:
1st, Mrs. R. C. Winthrop, $3; 2d, Edwin Parker, $2; 3d, E. L. Lewis, $1.
Endive.— Four specimens:
1st, Vincent Buitta, $3; 2d, Vincent Buitta, $2; 3d, E. L. Lewis, $1.
Lettuce.— Four heads:
1st, Edwin Parker, $3; 2d, W. W. Rawson, Black Seed, $2; 3d, W. W. Rawson, Butter, $1.
Onions.— Twelve Danvers:
1st, F. Heeremans, $3; 2d, E. L. Lewis, $2; 3d, W. H. Derby, $1.

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Twelve Red:
1st, Mrs. R. C. Winthrop, $3; 2d, F. Heeremans, $2; 3d, Edwin Parker, $1.
Twelve White:
1st, E. M. Bruce, $3; 2d, Edwin Parker, $2; 3d, Mrs. Alice Warburton, $1.

PARSLEY.— Two quarts:
1st, James Anderson, $3; 2d, E. W. Breed, $2; 3d, A. E. Hartshorn, $1.

PARSNIPS.— Long, twelve specimens:
1st, W. W. Rawson, $3; 2d, W. J. Clemson, $2; 3d, John Ryan, $1.
Hollow Crown:
1st, W. W. Rawson, $3; 2d, W. J. Clemson, $2; 3d, E. L. Lewis, $1.

PEPPERS.— Twelve specimens of Squash:
1st, E. L. Lewis, $3; 2d, Edwin Parker, $2; 3d, Mrs. Alice Warburton, $1.
Any other variety:
1st, E. L. Lewis, $3; 2d, Edwin Parker, $2; 3d, James Anderson, $1.

POTATOES.— Twelve Hebron:
1st, E. L. Lewis, $3; 2d, W. J. Clemson, $2; 3d, Edwin Parker, $1.
Twelve Rose:
1st, E. L. Lewis, $3; 2d, Edwin Parker, $2.
Twelve any other variety:
1st, E. L. Lewis, Green Mountain, $3; 2d, E. L. Lewis, Aroostook, $2; 3d, E. L. Lewis, Carman I, $1.

RADISHES.— Four bunches:
1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, W. Heustis & Son, $1.

SALSIFY.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, Giraud Foster, $2; 3d, W. Heustis & Son, $1.

SQUASHES.— Three Bay State:
1st, W. H. Derby, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
Three Hubbard:
1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, T. Valentine, $1.
Three Hybrid Turban:
1st, W. H. Derby, $3; 2d, W. W. Rawson, $2; 3d, G. F. Wheeler, $1.
Three Marrow:
1st, W. W. Rawson, $3; 2d, T. Valentine, $2; 3d, E. L. Lewis, $1.

TOMATOES.— Twelve Belmont or Beauty:
3d, Edwin Parker, $1.
Twelve Stone:
1st, W. W. Rawson, $3; 2d, Edwin Parker, $2; 3d, J. A. Nixon, $1.
Twelve of any other variety:
1st, Edwin Parker, $3; 2d, Giraud Foster, $2; 3d, E. L. Lewis, $1.

TURNIPS.— Twelve Flat:
1st, Elliott Moore, $3; 2d, E. L. Lewis, $2; 3d, Giraud Foster, $1.

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Twelve Swedish:

1st, C. M. Handley, $3; 2d, Joseph Thorpe, $2; 3d, E. L. Lewis, $1.

COLLECTION OF VEGETABLES.— Not less than ten varieties, decorative arrangement to be considered:

1st, W. J. Clemson, $15; 2d, W. W. Rawson, $10; 3d, Joseph Thorpe, $8; 4th, W. Warburton, $5.

Special Prizes.

COLLECTION OF VEGETABLES.— Not less than fifteen varieties, decorative arrangement to be considered:

1st, Edwin Parker, $50; 2d, E. L. Lewis, $30; 3d, F. Heeremans, $20.

Gratuities:—

Vincent Buitta, Collection, $10.
W. W. Rawson, " $10.
W. H. Teele, " $5.
P. Mead, " $2.
J. J. Oaks, Tree Tomato, $2.
C. W. Parker, General Collection, Bronze Medal.
Mrs. R. C. Winthrop, Collection, First Class Certificate of Merit.
Giraud Foster, " First Class Certificate of Merit.

CHRYSANTHEMUM SHOW.

NOVEMBER 2, 3, 4.

Special Prizes.

CELERY.— Eight roots, commercial grown:

1st, E. L. Lewis, a Silver Medal; 2d, W. Heustis & Son, a Bronze Medal.

Regular Prizes.

BEETS.— Twelve specimens:

1st, W. W. Rawson, $3; 2d, W. Heustis & Son, $2; 3d, Edwin Parker, $1.

BRUSSELS SPROUTS.— Half-peck:

1st, Mrs. A. W. Blake, $3; 2d, A. E. Hartshorn, $2; 3d, Elliott Moore, $1.

CABBAGES.— Three Red, trimmed:

1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2; 3d, Mrs. Alice Warburton, $1.

Three Drumhead:

1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.

Three Savoy:

1st, Mrs. Alice Warburton, $3; 2d, W. W. Rawson, $2; 3d, A. E. Hartshorn, $1.

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CAULIFLOWERS.— Four specimens:
1st, W. H. Teele, $3; 2d, E. L. Lewis, $2; 3d, Mrs. A. W. Blake, $1.
CELERY.— Four roots, Pascal, best kept:
1st, W. Heustis & Son, $5; 2d, W. W. Rawson, $3; 3d, Edwin Parker, $2; 4th, E. L. Lewis, $1.
Any other variety:
1st, Edwin Parker, $5; 2d, Mrs. Alice Warburton, $3; 3d, E. L. Lewis, $2; 4th, W. Heustis & Son, $1.
CORN.— Yellow or Field, twenty-five ears, traced:
1st, Elliott Moore, $3; 2d, Elliott Moore, $2; 3d, A. F. Stevens, $1.
CUCUMBERS.— Pair:
1st, Frank Pierce, $3; 2d, W. W. Rawson, $2.
ENDIVE.— Four specimens:
1st, E. L. Lewis, $3; 2d, Edwin Parker, $2; 3d, A. E. Hartshorn, $1.
LEEK.— Twelve specimens:
1st, Edwin Parker, $3; 2d, E. M. Bruce, $2; 3d, A. E. Hartshorn, $1.
LETTUCE.— Four heads, best kept:
1st, Mrs. Alice Warburton, Boston, $5; 2d, Mrs. Alice Warburton, Succession, $3; 3d, W. W. Rawson, Crumple Leaf, $2; 4th, Edwin Parker, $1.
PARSNIPS.— Twelve specimens of Long Smooth:
1st, W. W. Rawson, $3; 2d, W. J. Clemson, $2; 3d, A. E. Hartshorn, $1.
Twelve specimens of Hollow Crown:
1st, W. W. Rawson, $3; 2d, W. J. Clemson, $2; 3d, E. L. Lewis, $1.
RADISHES.— Four bunches:
1st, E. L. Lewis, $3; 2d, W. W. Rawson, $2; 3d, A. E. Hartshorn, $1.
SALSIFY.— Twelve specimens:
1st, W. J. Clemson, $3; 2d, A. E. Hartshorn, $2; 3d, W. Heustis & Son, $1.
TOMATOES.— Twelve specimens:
1st, Edwin Parker, $3; 2d, E. M. Bruce, $2; 3d, W. C. Winter, $1.
COLLECTION OF VEGETABLES.— Not less than ten varieties, decorative arrangement to be considered:
1st, E. L. Lewis, $15; 2d, Edwin Parker, $10; 3d, W. W. Rawson, $7; 4th, Mrs. Alice Warburton, $5.

Gratuities:—

Elliott Moore, Egg Turnips, $1.
Joseph Breck Corporation, Collection of Vegetables, $1.

WARREN W. RAWSON
WILLIAM H. DERBY
WARREN H. HEUSTIS
} *Committee on Vegetables.*

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REPORT OF THE COMMITTEE ON GARDENS FOR THE YEAR 1906.

BY WILLIAM P. RICH, SECRETARY.

The reduction in the number of prizes offered by the Society the present year through the Committee on Gardens has had the effect of reducing the number of entries and also the labors of the committee. Four visits of inspection have been made which are reported upon as follows:

Charles W. Parker's Estate, Marblehead Neck.

On June 11, by invitation of Charles W. Parker, Esq., the committee visited his estate, "Redgate," at Marblehead Neck. Viewed from the standpoint of the truest ideal in landscape gardening this is one of the most notable places on the North Shore of Massachusetts, and is an estate which may well be taken as a model for the treatment of such places on our rocky coast.

About twenty years ago Mr. Parker bought a tract of rough land, twenty-five acres in extent, rising gradually from the ledges of the harbor shore to an eminence of seventy-five feet. The land, or rather rock, was covered with a dense growth of native shrubbery, such as blueberry, bayberry, juniper, and wild roses, with not a tree except a few stunted cedars.

The problem was to convert this rough hillside into a setting for a summer home, and yet to utilize its natural features. To this task Mr. Parker set himself with enthusiastic interest, guided by his own artistic ideas of landscape arrangement, and the result is very satisfactory. Even the original occupants of the ground, many of which still remain in scattered colonies, lift up their heads higher, bloom more freely, and show larger flowers and fuller fruit, as if pleased with the improvements that have been made and stimulated by the cultivated examples around them.

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Here and there amidst the smooth, green turf, a gray boulder or projecting ledge arises, and at its base is massed a collection of brilliant phloxes, or hollyhocks, or golden glow, their colors richer by proximity to the sea.

Trees of many kinds and of large size are abundant, all planted by Mr. Parker. Then there are the orchards, the vegetable and herb gardens, and the small-fruit borders. There is also a small artificial pond with a profusion of pink and white water lilies, and in the midst of a rocky setting a miniature Japanese garden surprises the visitors. At every turn something of novelty and interest comes into view, and everywhere as one looks up from the observation of these things, are charming views of inland landscapes, the harbor, and the blue sea beyond.

Though not entered for any prize of the Society the committee is pleased to award "Redgate" a Silver Medal, as a slight token of appreciation of the excellent taste and judgment displayed by its owner in its horticultural improvement.

Dr. C. S. Minot's Peony Garden, Milton.

On June 20 a delegation of the committee again visited the peony garden of Dr. Charles S. Minot at Milton, which had been entered for the Society's prize for the best peony garden. Mr. Arthur H. Fewkes, a member of the committee, has kindly furnished the following description of the garden:

"The grounds were found in the same neat and flourishing condition as last year, but the effect of an additional year's growth was noticeable in the increased vigor of the peony plants and more profuse bloom. As the visit was made later in the month than before, the varieties in bloom were much different and included many of the finest varieties extant.

The plan of this garden seems to be nearly an ideal one in its tasteful arrangement of rectangular beds, intersected by grass walks, and the entire absence of any artificial accessories.

The scheme of the entire garden, the peonies forming but a part of the whole, is such that one approaches it gradually through two other portions which are divided from each other by slight hedges, so that after the flowering season of the peonies is over, the absence

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of their flowers is hardly noticeable in the general effect, for the other portions of the garden are filled with later blooming perennials. While a few early flowering bulbs and late flowering plants are planted with the peonies the main idea and effect is distinctly a peony garden, the other plants only serving to brighten the beds before and after the peonies have bloomed.

The general features of the estate were so well described in the report of the last visit that the need of further remarks, other than in connection with the methods of cultivation practiced, and a few words in conclusion, seem unnecessary.

The natural soil of the garden is a clayey loam and the most satisfactory method of planting has been found to be deep cultivation accomplished by making a hole two or three feet in diameter for each plant, removing the soil to the depth of eighteen inches and digging into the bottom a heavy dressing of cow manure. The pulverized soil is then returned and the plant set out, no fertilizer of any kind coming in direct contact with the newly planted roots. The young roots soon become sufficiently strong to penetrate to the fertilized soil at the bottom and at that depth are less affected by dry weather.

The points which impressed themselves upon the committee as the most desirable and worthy of imitation in this garden were the partial separation of the peony garden proper from the main garden, thereby removing from the main body of the garden the objectionable feature of a large number of flowerless plants after the blooming season is over, and at the same time so arranging them that when in bloom they make a most attractive and effective feature of the garden scheme; and the arrangement of the plants in a series of rectangular beds cut out from the soil leaving strips of grass between them which serve as walks, giving free access for the examination of varieties; while the effect of the whole is enhanced by the surrounding green of the grass, which of course must be kept short and smooth by frequent use of the lawn mower."

Morton F. Plant's Estate, Groton, Conn.

September 21 the committee inspected the estate of Morton F. Plant at Groton, Connecticut, now in the second year of its entry for the H. H. Hunnewell Triennial Premium.

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The main features of this magnificent property have been described in the previous reports of this committee for the years 1904 and 1905.

Although late in the season the display of flowering plants was very fine and the whole estate showed evidence of the continued improvement that is being made in converting a barren ledge of rock into a garden of beauty.

During the past winter several large trees have been transplanted to the estate and are doing well and add greatly to the general effect. The superintendent, Thomas W. Head, is so much gratified with the success of this experiment that he is planning to set out more the coming winter. The greenhouses were in their usual fine condition and the chrysanthemum houses, especially, promised a little later most magnificent returns.

This estate is destined to become one of the grandest in New England, and the members of the visiting committee were much impressed with the advance that has been made since it came under their observation.

Mrs. John L. Gardner's Estate, Brookline.

September 27 the committee visited the estate of Mrs. John L. Gardner at Brookline which is now in its third and last year of entry for the H. H. Hunnewell Triennial Premium.

Not much in the way of description need be added to the reports of previous visits to this place. Perhaps the feature which most impresses itself upon the visitor is the great stretches of lawn, bordered by grand old trees, an adornment of an estate never surpassed by any floral plantations however beautiful.

William Thatcher is the superintendent and head gardener and the general appearance of the place reflects credit upon his skilful management.

The committee takes pleasure in adding this estate to the roll of those honored by the Society as the recipient of the H. H. Hunnewell Triennial Premium.

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Prizes and special awards have been awarded as follows:

H. H. Hunnewell Triennial Premium.

For an estate of not less than three acres, which shall be laid out with the most taste, planted most judiciously, and kept in the best order for three consecutive years:

First, Mrs. John L. Gardner, Brookline . . . $160.00

Society's Prizes.

For the best Garden of Peonies, not commercial:

First, Dr. Charles S. Minot, Milton 30.00

Special Awards.

Charles W. Parker's Estate "Redgate" at Marblehead Neck, Silver Medal

OAKES AMES
GEORGE BARKER
WILLIAM N. CRAIG
WILLIAM H. ELLIOT
ARTHUR F. ESTABROOK
ARTHUR H. FEWKES
CHARLES W. PARKER
JOHN A. PETTIGREW
WILLIAM P. RICH
HENRY P. WALCOTT

Committee on Gardens.

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CHILDREN'S EXHIBITION, SEPTEMBER 15, 1906

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REPORT OF THE COMMITTEE ON CHILDREN'S GARDENS FOR THE YEAR 1906.

BY HENRY SAXTON ADAMS, CHAIRMAN.

The work of your committee during the year 1906, as pointed out in our last report, has been devoted entirely to the encouragement of gardening among children. The result has proved, we believe, the wisdom of the change in the work of our committee. We have before us a definite policy in which all members of the committee are interested, a condition which is necessary for the best results.

It is with a feeling of regret that we have to report the resignation of Mr. Charles W. Jenks from the committee. He has long been an active member and has rendered most valuable service. During the past year he visited a large number of the gardens entered for prizes and we had hoped the new field would prove as interesting to him as the more botanical work of the committee in the past. We owe to Mr. Jenks a vote of thanks and take this opportunity to express to him our appreciation of the work he has done for the committee.

A study of the problems before us has resulted in a much more definite idea of what we are trying to do. School gardening is undoubtedly today on a much firmer basis than ever before. It is, in fact, recognized by modern educators to be one of the best forms of industrial education in our schools which cannot be replaced by any other subject. Secretary Martin of the State Board of Education so ably defined the value of school gardens at our conference in December that we need spend no further time on their educational advantages. Let us inquire, rather, into the relation of children's gardens to our society. Our interest is centered in horticulture and whatever we can do to promote it is of vital interest to us. We believe there is no better way to encourage gardening than to teach the children to love and to grow plants.

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Through the children we reach the parents and ultimately introduce gardening to the homes as can be done in no other way. What worthier work could a horticultural society do than this? Think what it means to the future of horticulture and the lives of our people.

Home gardening has been slow in its development in this country due largely to ignorance of gardening methods and to the indifference of those interested professionally or otherwise toward making gardening popular. It is gratifying to feel that we have behind us today a multitude of interested and enthusiastic persons; we have also the backing of prominent educators who say gardening should be taught in all public schools; and, finally, the Society of American Florists and Ornamental Horticulturists has devised a plan, through its special committee for teaching horticulture in the public schools, showing that the trade has become interested in the movement. We are especially pleased to find extracts of our last report quoted several times in the address of Mr. E. V. Hallock before the convention of the society at Dayton last August.

Our work is bringing us into closer touch with those interested in the movement both in the state and in the country at large. Following the policy of last year your chairman has visited most of the school gardens entered for prizes and has also extended his studies to a number of representative gardens outside of the state. The School Farm at New York City and representative gardens in Philadelphia were thus visited at a personal expense of time and money. A similar trip to the State Normal School at Hyannis proved most interesting. The various members of the committee have visited a large number of both school and home gardens and your chairman wishes to express his appreciation of the interest and time given over to this work. It has been no small task but one which is of great value to the movement.

Under the auspices of the Wellesley Village Improvement Association your chairman has obtained most valuable experience in organizing and directing a school garden. He has been enabled to enter into the spirit of the movement as could hardly have been done by any other method. A successful garden was maintained at Wellesley this year with an intelligent and enthusiastic, though inexperienced, young woman for teacher. We call your special attention to the report of this garden to be found further on.

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Our 1905 report was issued early in the year and requests for it have been received from all over the country. We feel that it contains much valuable information and that our efforts are bearing fruit. It has been most gratifying to hear the words of commendation from those who entered for prizes last year and the expression of their satisfaction of the fairness of our awards.

As the result of a suggestion made at our first school garden conference, a school garden institute was held under the auspices of the Massachusetts Agricultural College in coöperation with our society in April. The society gladly gave the use of the hall and the meeting was well attended. The program was most carefully prepared and proved of great value to those wishing to take up school garden work.

The year has shown a marked advance toward the day when school gardening will be taught in all our schools. The cry from all over the country is, Where can we get experienced teachers? This demand must be heeded and those institutions whose business it is to educate teachers must take up the movement. Shall the normal schools or the agricultural colleges take up this work? Shall they unite in this instruction? If so, Where will they get properly trained instructors? This is the great problem and one which must be thoughtfully met. When shall we have a Massachusetts School of Horticulture with School Gardening one of its main departments? School gardening opens a new field for energetic and enthusiastic young women who love gardening and children. The remuneration will not be large but should at least equal that of other specialized teaching work.

Children's Garden Conference.

The success of our conference last year led us to hold a similar one in December and, although we had no exhibition of children's herbarium sheets as last year, the conference was well attended. During the meeting we placed on exhibition various photographs, notebooks, etc. of children's garden work which had been sent in to us. A very interesting display was also made of photographs, etc. of the Brookline school gardens.

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In arranging the program for the conference a logical treatment of today's needs was undertaken and we believe successfully carried out. Secretary Martin spoke admirably on the educational value of school gardens. With their necessity in public schools so ably pointed out Professor Waugh and Principal Baldwin considered the education of school garden teachers. A school superintendent feels the pulse of the public and Mr. Marsh spoke on the relation of children's gardens to the public. We were very much pleased to have Mr. Henry G. Parsons of the School Farm, New York City, present at the meeting. He spoke very enthusiastically of the work they are doing and the discussion which followed was most energetic. Altogether the conference was a great success.

The meeting was presided over by your chairman, who, after reviewing the objects of the conference and discussing briefly the work of the year, announced the prizes awarded for school gardens, school grounds, and children's home gardens. The new prize circular for 1907 was also discussed and distributed. The addresses are given in connection with this report.

School Gardens.

When the entries for school garden prizes were in, June 1, there were found to be twenty-three which was a gain of eleven over last year. The competition was divided into two classes, those gardens which had entered before, and new gardens. This was tried as an experiment, hoping thus to give the newer gardens greater opportunity for the prizes. This, however, will not be done again as we expressly state in our new circular that the awards will be based on what the gardens are really accomplishing under the existing conditions and not on mere size and fine feathers.

As a whole the gardens this year were most satisfactory. While some were poorly planned and apparently carelessly managed the majority showed a decided improvement. We are now even more impressed than last year that while there are many other things needed by a school garden teacher, a thorough understanding of gardening and a love for it are of greatest importance. For

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example, in the matter of crops grown, some gardens are full of bare ground late in summer, after the early crops have been removed, showing failure to understand how to plant for succession.

Reports of a number of school gardens are printed in connection with this report.

SCHOOL GROUNDS.

Prizes for school grounds were new to the work of our committee this year and but three schools entered. We believe this to be one of the most important fields for our efforts and hope for a larger entry list next year. Unfortunately but two of the schools sent in reports and but two of our three prizes were awarded. We have provided six prizes for 1907.

Every school yard in the state should have something done to beautify it if there is a yard at all. Many of our country school grounds are bare and neglected, while often in the city the yard is either all brick or concrete. A large number of these yards can be cleaned up and beautified at small expense and such work will help to make our children neat, home-loving citizens. We want to emphasize the fact that both this work and school gardening need not in any way interfere with the children's playground. It will increase the use of it, rather, as there are always some children that cannot enter into the games of the majority and they find pleasure and recreation among the plants. It might well be said right here that school gardening is loved by the children and that the so called "toughest boys" in school often become the most interested and are accordingly greatly benefited by it.

The report of the Tracy school follows.

CHILDREN'S HOME GARDENS.

The entries for children's home gardens numbered 259, a very decided gain over any previous year. We adopted this year an entry card and each child entering had to fill out a card and have it indorsed by a parent or teacher. The difficulties of our method of awarding home garden prizes were again clearly brought out

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during the year and our three years' experiment has shown us that a different method is needed. Next year our awards are to be given to organizations managing children's home gardens and not to the children themselves. This money may then be distributed in the form of prizes to the children most faithful in their work which can be easily determined by local inspectors or may go into the general expense account.

Our difficulties were as follows. First; of the large number of gardens entered but few could receive prizes. Second; the great distribution of the gardens over a large territory made it practically impossible to visit all of the gardens even once during the season. Third; where so many children were involved it is very difficult to get them to send in a letter describing the garden as shown from the few reports received as compared with the entries; and lastly, the money awarded becomes so widely distributed that in most cases it does comparatively little good towards carrying on the home garden movement. We think these difficulties will be overcome by treating directly with the organizations that carry on the home garden work. It is as difficult to make children of the ages desired carry on gardening as anything else unless kept up to it by some older person. It is not that they do not love the work but they must be encouraged and told how to do it. We wish therefore to encourage Woman's Clubs, Improvement Associations, and other organizations to take up home garden work.

We have increased the number of prizes to be awarded at our children's exhibition and will in this way award the children directly for their efforts. Some school garden letters follow.

Children's Exhibitions.

Two children's exhibitions were held this year, one in July and one in September. The July exhibition was held in the small exhibition hall filling two long tables and a portion of the side tables. We were very much surprised at the amount of material brought in and were in every way satisfied with the experiment which we were trying. It was a good beginning and made us hope for better results later on.

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The September show filled the lecture hall and was undoubtedly the largest and best children's exhibition ever held in this country, perhaps in the world. Not only were the school and home gardens represented with products but there were several hundred boys and girls in attendance full of enthusiasm and spirit. We were literally swamped and it was with great difficulty that we succeeded in awarding the prizes. Some of the products shown were as fine as ever seen in our regular exhibitions and the interest certainly equalled, if not exceeded, anything ever seen before in our halls. We are glad to say that our children's herbarium exhibits of previous years which interested comparatively few have been superseded so successfully.

Next year we plan for one large show in September and hope to see even more visitors than this year. We estimate there were upwards of 500 visitors during the two hours of exhibition. At both exhibitions the Cobbet School received first prize for School gardens and a description of the September exhibit of this school is herewith given.

The exhibit of the Cobbet School filled two long tables and was characterized by the same variety of products as in June. Such products as eggplant, peppers, endive, and the large numbers of varieties of beans and root crops were notable. The flowers shown included many varieties of hardy flowers, annuals, and such others as gladioli, cannas, and dahlias. The most novel features of the exhibit were the eighteen varieties of herbs, raised from seed at the school garden, the final fruit of several years of experiment, and the display of seeds of vegetables, hardy flowers, and annual flowers. Such valuable lines of work are brought clearly to the attention of other workers by these exhibitions and thereby any achievement of one school is soon known and duplicated in many other places.

Our prize list for the next September show has been increased and we hope to have a large and successful exhibit. All schools and children having gardens are cordially invited to be present and to bring in their garden products.

Looking Onward.

Our appropriation for the year 1906 was practically all used. proving that the increase received last year was none too much,

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We wish to thank the Trustees for the help which they have given us and hope that we will be able to use our even larger appropriation for 1907 with an equal feeling of confidence that it has been well spent.

The year has been a most successful one and we report marked progress in our work. We are still only beginning and hope that our efforts may prove stimulating to other organizations to carry on a similar work. We ask the hearty coöperation of all who are interested that success may attend our efforts in what we believe to be a vital movement for the future of gardening among our people.

Abstracts of Addresses made at the Children's Garden Conference.

Held at Horticultural Hall, Boston, December 15, 1906.

The Educational Value of School Gardens.

BY HON. GEORGE H. MARTIN, SECRETARY STATE BOARD OF EDUCATION, BOSTON, MASS.

It is hardly necessary, in view of the widespread and rapidly spreading interest in school garden work, that I should appear here this afternoon to speak of the educational advantages of them. They have been already discovered by the two organizations in the state which are devoted to the agricultural and horticultural interests. The State Board of Agriculture is fully alive to the importance of school gardening as preparatory in a way and supplementary in another way to the agricultural work of the state for which it is organized, and the Horticultural Society has already gone so far in its leadership in the movement that any discussion cannot be for the purpose of convincing them. The superintendents of the state are rapidly becoming interested in the movement and they have discovered educational advantages. The fact that last year there were some three hundred school gardens in the state is evidence of this. While it would seem from the report which Mr. Adams has read of the prizes that were given, that school gardening was comparatively limited in its scope and

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but a small number of places are undertaking this work, there is not a county in the state in which there are not school gardens and the towns and cities are already taking up the work with increased interest. They are going about it with increased intelligence; year by year it is better organized and better related to the other school work than at the start; and yet there is room for development.

There seem to me to be three strong educational reasons why the school garden movement should spread until it becomes universal, for it is my own personal feeling that the time is coming when the school garden will be considered as important in the equipment of any public school as the library. The first educational reason is that the garden appeals to the interest of the children in seeing something happen and in watching the development of the plant life in their gardens. In watching, too, the development of animal life, insect life, and bird life in connection with their gardens. There is always something for the child to look forward to, always something to excite his curiosity and his wonder, and we know how profound those feelings are in interesting the child. He is expecting something to happen and is inclined to be eager to see whether it does happen and if so when and how, and by and by, why it happens. This is the feature of it which gives the garden its chief educational value in that it appeals to the child more directly than any other form of school work. We have had nothing before which satisfied those feelings; all the school activities in the past connect themselves very slightly with life of any sort. Most of them have been in the air rather than on the ground and the advantage is that this work is on the ground. It keeps the child where he is and is within his reach. That is the first educational advantage.

The second reason is that it allies itself with the other school activities as perhaps no single school activity does. That is true of any form of manual school work but this touches at more points than anything else we can think of and it brings an air of reality and vitality to the other school exercises. It allies itself directly with what we call the language work, taking it out of the air into the ground, out of the theoretical into the real, out of the scholastic atmosphere into the atmosphere of real life. The opportunities for developing both the oral and written language of the child through the school garden seem to me almost endless. It allies itself not only with the literary work but with the drawing. It brings that too into the realm of reality. It gives the child a reason for doing the work that is set for him to do and it adds life and interest to every feature of the drawing work, every department of it. It connects itself and may connect itself much more than it has in the past, as Mr. Baldwin has shown in his Hyannis work, with the number work. He has shown what it does for the arithmetic work. Children find in connecting their arithmetic with their gardening work they are dealing with real things in a real way and for a purpose which is their own, for every problem has an end. They are doing these because there is something there that they

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want to find out. The children write in connection with it because there are things there that they cannot describe in words. It is because they want to use these things that makes the work so effective. It connects itself not only with the language, the number, and drawing, but it connects itself and lays a foundation for a much more advanced work in the higher departments of school, and I have felt very strongly that the school garden is an essential to the high school; it is the most effective laboratory a high school could use. The department of biology would be vitalized if it were connected with the school garden and familiarity with the features of school gardening would do as much for the study of literature, rendering plain the figures of rhetoric with which literature abounds. I believe it is idle for any teacher to try to teach literature by explaining in words what these figures mean. Both for the high and the elementary schools the school garden is to come in and will be found to be the most effective and useful laboratory that can be maintained today.

A third reason is the social side of the garden. It connects itself so closely with the home life of the child. That is our one great need at present. It is to be the work of the immediate future to bring the school and home back into their old-time relations and I think by means of this work it can be done. The children are applying at home what they have learned at the school garden and this will be a means of binding the two together. Such work as Mr. Hastings has done in Fitchburg is useful especially in a city where perhaps a school garden may not be practicable but where in every home there are opportunities for giving the children the same sort of training.

These seem to me, Mr. Chairman, the three most essential features; the fact that it appeals to the instinctive craving of the child for life process, the fact that it renders vital other school work, and that it tends to connect the school and home as nothing else does. I may seem extravagant in my claims but I have learned to become interested in it and every year as I have watched it it has grown upon me as one of the valuable features possible in public school work.

Horticultural Education for School Garden Teachers.

BY F. A. WAUGH, PROFESSOR OF HORTICULTURE AND LANDSCAPE GARDENING, MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MASS.

In all the conferences on school gardens that we have held and in all discussions on these topics the first practical question to come up has been that of knowing how to make the garden itself. In other words the horticultural question seems to be fundamental. Over and over this point has been emphasized, that a school garden must be successful first

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as a garden before it can be a successful educational enterprise. This of course is requiring a good deal of the teacher, because horticulture is a long long art; and if one must be an expert teacher, and before that an expert horticulturist, that is certainly asking a good deal for $45 a month. It is hardly to be expected that every school teacher will become an expert horticulturist and yet we cannot for a moment relax our emphasis on this point. Again and again it appears imperatively that we must know more horticulture.

Having determined so much, the next question follows closely after. Where, how, and when are school garden teachers to get their knowledge of horticulture? Someone said a long time ago that to train a good woman you must begin with her grandmother. In a somewhat similar way, to make a good horticulturist you should begin with the grandmother. Horticultural education ought to begin early. It certainly is a great advantage to every teacher to be born on a farm. The early farm experience is invaluable. It is especially so to a young man, but even the girls get a good deal out of farm life. That experience of childhood on the farm is worth everything to the one who takes it rightly. I know there are some to whom this farm life has meant nothing, and my heart bleeds for those men and women who look back on such a childhood with bitterness. To me it seems the most delightful experience a child can have. It seems to me the best possible foundation for all kinds of education. Out of this experience there should come a true love of rural life in all its large aspects — a love of growing plants, of animals and of the land. There should be a real love for the soil. There are times when I go into the field as the mellow furrows are being turned by the plow when the whole land looks good enough to eat. If one's experience of country life has given him or her this feeling with regard to the soil and to all those things connected with it that is the best possible foundation for teaching school gardening.

This sort of an experience and enthusiasm should create through the teacher a school garden atmosphere which is invaluable in this line of teaching. All of us know that each particular school has its special atmosphere. The high school has its bookish atmosphere. The technical school has its scientific atmosphere; and so the school garden should have a garden atmosphere. This fundamental condition for success should grow out of the natural love and enthusiasm of the soil which I have attempted to sketch.

When teachers undertake to learn school gardening they should get their instruction in a garden. Now there are all kinds of gardens, and all are good; but for this purpose I should say that a well-kept garden is essential. For the purpose of the present discussion it is convenient to divide all gardens into two classes, the amateur gardens and the professional gardens. The point of view in these two different schemes is radically diverse. The amateur garden is conducted for the fun of it, while the professional gardener grows plants for profit only. I should say that a better atmosphere for the school garden teacher is to be

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secured in the professionally conducted garden. I would recommend that the school garden teacher get his or her knowledge of gardening from the professional gardener.

There are special garden courses, or courses in general horticulture now being established in various schools; and we may expect that in the future these will give some opportunity for the training of school garden teachers. Various academies are now enlarging their work so as to include agricultural and horticultural courses. Yet for thorough work in school gardening these secondary schools can hardly furnish the proper grade of teachers. In looking for such teachers it is somewhat natural to turn toward the larger institutions which are better equipped for this sort of work. Of course I am prejudiced in this matter — a prejudice which I freely admit, but there seems to me to be no fair question but that the best opportunity for teaching horticulture in this neighborhood is to be found at the Massachusetts Agricultural College. We have at college many acres of orchard, garden, and woodland, as well as fields devoted to general farm crops, and fields devoted to special experiments, all managed as well as circumstances allow. All the various agricultural activities of this country and climate are rather fully exemplified. And while that material up to the present time has not been used for the education of school garden teachers it is easily capable of being turned to such account. There are some of our graduates who now leave college to teach. They must be to some extent prepared for school garden work; but teachers who look forward to real teaching and real school garden work need both normal school training and agricultural college training. It would seem therefore the natural and the best way to arrange this matter through some form of coöperation between the normal schools and the state agricultural college. It seems both wise and convenient that normal school graduates who wish to take up school gardening should go to the agricultural college for their instruction in horticulture; and it seems equally proper that students of the agricultural college who intend to take up teaching should go to the normal school to secure their teaching methods. I see no difficulty in arranging some plan of coöperation between these institutions. Already steps are being taken at the agricultural college with the help of funds to be provided by the state for beginning some work of this kind. I understand that some negotiations are already underway looking toward such forms of coöperation as I have suggested. We may fairly expect therefore that in the near future we shall have opportunities of a large sort here in Massachusetts for those teachers who wish to prepare themselves well for school gardening. This may look like a large contract; for at present we know that not all teachers attend the normal schools even, and it may be expecting too much to ask them to attend the two colleges. Nevertheless if the present plans are carried out I am sure it will not be hard for more ambitious ones at least to get a great deal more training in the future than has been available in the past. The great problem in school gardening is to

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get the teachers, and the teacher's great problem is to get her knowledge of horticulture. We hope to do our share in providing her with reasonable opportunities.

School Garden Work and the Normal School.

BY W. A. BALDWIN, PRINCIPAL STATE NORMAL SCHOOL, HYANNIS, MASS.

In the brief time at my disposal I cannot do better than to analyze the forces which have driven the Hyannis Normal School to take up the school garden work. I venture to consider this account as worthy of presentation because I believe that it is typical of what is happening or must soon happen to every progressive normal school.

Modern pedagogy demands that there must be a basis in sense perception along every line. We are, therefore, driven to one of two courses. First, let the child alone to get such experiences as may come to him. Second, select or help him to select such typical experiences as would seem to furnish him with the needed basal experiences.

We used to leave the matter to chance and we inclined even to disregard the valuable experiences gained by the child in this haphazard way. With the advance in science it has become impossible to leave the whole matter to providence and we have been inclined to go as far the other way, leaving nothing to individual initiative. The result has been such work as the regulation sloyd manual training.

In slavish imitation of others we had put sloyd into our Training School. It was not producing the desired results and we began to consider the matter. The problem as it presented itself to us was something like this:

What form or forms of manual training are best adapted to produce the desired results? We were then driven to consider more carefully than ever before just what results we were aiming to secure. This has proved for us a fruitful question which is not yet fully answered. We soon became convinced, however, that such work should possess the following characteristics:

1. It should grow out of the environment of the child.
2. It should come as a response to something from within the normal child.
3. It should be typical of important world activities.
4. It should furnish ample opportunities for the child to act himself out in connection with typical activities and relations to things and to people.

The first three are to such an audience as we have today obvious. The last is less obvious but vastly important. Let us consider it for a moment.

Unless a child is allowed to act himself out there is no opportunity to

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discover his weakness and to help him to grow strong. If he acts himself out with things which are not typical there is no especial gain. If the relations are artificial and unusual false associations are formed, false standards are established, wrong habits and a wrong attitude toward life are fostered. These results have troubled the thoughtful observer in connection with regulation manual training in wood and iron, and even in regulation cooking courses, when not connected with home needs, and sewing, when based upon a system of models.

Becoming dissatisfied with the regulation manual training we looked about for something better. We found several forms which pleased us and which we are using but none which, on the whole, proved so satisfactory as has school gardening. It furnishes for us all of the requisites given above.

It gives some organic unity to our nature study.

It furnishes one center for correlation of our so-called regular school work.

It helps on the physical side by getting the children and teachers out-of-doors a part of the day.

It helps to establish proper relations between the school and the home and the world.

It is true that some city normal schools are, by the artificial conditions with which they and their graduates have to contend, deprived of many of these privileges, but the majority of the graduates of our normal schools may and should use some form of school garden work in connection with their school work.

I have already said and written so much regarding the use of the school garden as a basis for other school work and social work that I will only say here that anyone who is interested enough to write for a catalogue may receive some account of our work along that line.

It seems wise to us to put this work in three times during our nine years of primary and grammar schools. The reasons I shall be glad to state if anyone is interested to have them.

Until last year we had not given school garden work to our normal students. They had observed the work of the children and, in some cases, had gained experience in teaching the subject during their practice term, but the majority went out without any adequate experience which would enable them to do the work in the schools where they were to teach. Gradually it dawned upon us that we were doing for our normal students just what we were criticising others for doing with the children, viz., depending upon any chance experiences which they might have picked up and upon a little observation work, as a basis for understanding this very important branch of school work.

We have now made the school garden an intrinsic part of our course in botany. Every student has his own garden. This experience is supplemented by observation and discussion of the work of the children of the Training School and by as much teaching as it is possible to allow.

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The present demand for teachers in this subject would not warrant every student in paying so much attention to this subject were there no other gain. We, however, believe that apart from such demand this kind of work furnishes a splendid opportunity to put into concrete form some of the most important principles of modern pedagogy, principles which ought to underlie all good teaching.

I ought to say in closing that such preparation does not insure successful work in this subject on the part of every graduate. This is particularly true if the graduate is expected to inaugurate the school garden movement in a town or village. Such inauguration needs a person of strong personality, sanguine temperament, and much common sense. Given such a person with such training and I do not fear for the results.

Children's Gardens and the Public.

BY FRANK M. MARSH, SUPERINTENDENT OF SCHOOLS, FAIRHAVEN, MASS.

I am always glad to speak upon this question of children's gardens, because of the fact that it seems to me to be a movement which perhaps above all others may be an entering wedge to really enrich the school life of our boys and girls, and at the same time, plant roots and ideas which may result in a more wholesome, more enjoyable, and possibly more profitable life.

It is a clearly recognized fact that all our education in the past decade has been toward the city and toward urban conditions. This tendency has developed so many evils both in overcrowding the city conditions and in depopulating the country towns and villages that it seems to me any movement which may serve as a check to the unwise migration to city and commercial and manufacturing centers may be worthy of encouragement. The whole subject of better rural conditions and more wise use of the uncultivated areas of New England would mean a happier and more profitable life for many of the young men and women who drift into the humdrum, unsatisfying, and sometimes destructive conditions which they attempt to cope with in the crowded centers. It seems to me that these conditions may be checked at least, if there can be developed a more wholesome respect for rural life and a more intelligent application of the efforts of young men and women to the cultivation of the soil and the establishment of attractive homes.

After these most excellent papers which have just been listened to by you with so much interest, from the attention which has been given to this subject in the last few years, and after many successful experiments on a small scale, I think there is at this time, not much need for argument in a gathering of this sort, in favor of children's gardens or in favor of attention to horticultural and agricultural betterment.

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When you stop to think how much of life depends upon the products of the soil, how much of life is affected by environment, we can easily see that the time is not far off when there is to be a reaction, we trust, which will mean that more people, when properly informed and guided, will prefer the safe and wholesome and comfortable conditions of the New England village and homestead, rather than the unhealthy and soulless employment found in mill or factory; and it is for the sake of creating this better attitude and more intelligent understanding of the opportunities and enjoyments of rural or village life, that the study of gardening and horticulture in our schools should be introduced. I think we may fairly presume that this is an assumption which will not be questioned. This topic, however, calls for discussion of the school garden and the public. The public of course may mean almost anything. We might as well admit and recognize at the very start that the public or public opinion is a factor which has to be seriously considered. The schools are public schools. In a way, they have to be what the public demands, and what the public is willing to support. Hence it seems to me that the immediate problem for children's garden workers and for those that have horticultural and rural improvement schemes to advance, is to create an intelligent and proper attitude on the part of the public toward these movements.

During the year we have been frequently asked how to make school garden work successful, and the answer to such a question would have to be so varied for different communities and for different individuals that of course we have been unable to give any satisfactory answer, and as I understood this to be a very informal meeting, I will take the privilege of offering a bit of testimony as to the introduction and progress of this movement in the town which I represent.

Some four years ago, the superintendent caught a bit of inspiration from one of the original American school garden enthusiasts, the former chairman of this committee, and after mulling the matter over, broached the matter to members of the school board. They at least could see no harm in the proposition and in a way were led to become somewhat interested in it, possibly with a little feeling of skepticism and doubt, but yet with some confidence that it might be worth while, and specially because we were not to ask for any money out of the public treasury. We proceeded on faith, getting some of the boys and girls interested, getting a friend to plow, getting the President of the Improvement Association and other officers sufficiently interested to lend a hand with spade and fork in converting a rough corner lot near the school building into a well-graded plot and by quiet agitation developing enough momentum of opinion, to at least make some defenders of the movement when the first bit of ridicule and public doubt arose. For a time there was discussion on this side and on that, some were ready to cry fad, fad, and foolishness; others were ready to admit the excellence of the idea, while expressing feelings that it was impractical; others expressing interest and enthusiasm. I think probably this would be the normal condition when such movement was

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introduced anew. Next the children were inoculated with interest and ambition and hope, and this became contagious, and much work and much profit from this undertaking was accomplished by the children. Someone had to bear the brunt of the planning, someone had to see that conditions were such that success was certain, and when everything was plotted and planted all sorts of hopes and fears were entertained as to what the results might be. To make a long story short, the careful, orderly, and bountiful results were such that the skeptics and scoffers grew less and faded away, from the time the first shoots appeared, until the rough plot of ground blossomed with flowers and plants of many varieties, and teemed with vegetable growth which was both good to look upon and profitable for consumption. So well had the children done their work in the beginning, so faithfully had they cultivated their growing plants that some of the good ladies and interested men who had tried experiments in their own yards, thought there must be some sort of trick about the thing; some mysterious feature as to how it was done. Several people thought it must be in the seed and at once inquired where we obtained the seeds.

After this successful summer there was no further opposition or criticism, and for the past three years many have been the kind words and comments, and generous has been the encouragement and attitude. The public confidence needed to be won. To do this, it was necessary to demonstrate the feasibility and the profit in such a movement. The Improvement Association which happened to be made up of men and women who could appreciate the value of such a movement, were ready to make an appropriation, and by this time the school department was willing to pay for some of the necessary tools and some of the larger items.

The next year the Improvement Association was only too glad to duplicate its contribution. The school department had no hesitation in paying part of the expenses of maintenance. The Improvement Association, furthermore, was ready to extend the movement and expend more money in starting home gardens, and for two years has successfully carried on this work, creating a special committee to direct it.

This year the school department, representing the public as it does, recognizes the fact that it is a legitimate expenditure from the public treasury to pay for the major part of the expenses of supervising and maintaining this department of school work, and I think it is safe to say that public opinion has been won in favor of children's gardens at school and at home.

The question has been raised by the previous speakers as to two very important features which now perhaps need attention more than others. First, the educational value of the movement, which is generally admitted; second, shall the colleges and normal schools provide better training for teachers who shall carry on this work.

In discussing this matter of children's gardens recently, I ventured to point out that while an enthusiast with perseverance and careful study

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could win over public opinion in favor of the movement, it was not an easy matter to find such an enthusiast or such a teacher to carry out this work, and we ventured to suggest that the state of Massachusetts might better spend some of its money in the establishment in all our normal schools of departments or at least courses for the training of our teaching forces along these lines. Some of this work is done at some of the normal schools, but in few is it done in such a way as to really inspire enthusiasm on the part of the graduates or a broad understanding of the aim and policy and general purpose of such a movement. It is too often touched so lightly that the graduate is not prepared to even introduce the work; is not prepared to help mold public sentiment; is not prepared to overcome the obstacles which are bound to appear. My contention is that the state can well afford for many reasons to create such departments in the normal schools and to make them of such interest and importance that some of the teachers at least will be capable and anxious as they go out into the rural and village schools to develop a more intelligent interest, a more generous attitude toward rural conditions, and a better knowledge of the possibilities and enjoyments of non-urban life. I say the state can better afford to do this than afford many other expenditures which will bring fewer returns. It has been said that the public school should aim to produce best men, best women; if you please, the best citizens possible. In a democracy the chief care of the state is to improve and train its members who are the foundation of the republic. I have often asserted that the home and the family is the most potent and effective unit in our social and political life, and it is the improvement of our homes and the consequent love of home which the children's garden movement engenders, that is to bring about the rewards for whatever is put into this movement. I may have mentioned in your presence before, that there will be no lack of patriotism, genuine patriotism, on the part of the people who have homes which they love and which they would be willing to defend at any cost.

I am impressed with the fact that thousands and thousands of dollars are expended by the state for immense armories and military equipment and expenses with all their pomp and glitter, and at the same time I think of these armories as being used only infrequently by a few. We can recall that the very best fighting and the very best defense that has ever been made was not done by the trained and richly equipped red-coats of Great Britain, but by the embattled farmers and home lovers of Charlestown and Boston and Bunker Hill. As our late lamented Senator Hoar once said, "Times were when men were proud to strike for their altars and their fires, but you hear very little of men striking for their flats and furnaces." The men who will be most anxious to defend their country the men who will be most patriotic to stamp out the evils of city corruption and commercial crime, will not be the men who frequent the crowded cities and factories, who live like cliff dwellers in the high apartments of our great cities, but it will be the sturdy, home loving, patriotic citizen

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who has been kept in better tone and in a better environment in a home-like home and has developed a higher appreciation of what life may mean.

The state furthermore can better afford to give some thought to this phase of her development, since it is without question upon the soil and upon the country that humanity must depend for supplying the commodities which go to make up the activities of the city, and for supplying man with the necessities and comforts of life. The great problem of the slums in our cities, and the great problem of the village and country slums may be improved by instructing these people as to the possibilities of a plot of ground properly cultivated, and when we think of our vast areas of Massachusetts land now unused, and the many who are practically starving in the crowded centers, it would seem a legitimate investment for the state to expend public money upon any movement which would tend to encourage the better appreciation and development of our agricultural and horticultural resources.

The points which I should like to make are these: that the educational value of children's gardens is becoming questioned less and less; that public opinion as a force has to be recognized and won in favor of this movement. To do this, the introduction of the movement must be well planned; the soil must be well prepared; and the workers of the soil must be carefully inoculated with correct ideas and right attitudes and aims. Societies and associations with similar aims must be enlisted and drafted in aid of the movement. The newspaper can be a powerful force in advertising and spreading the news of the movement, but what is needed most of all is courage on the part of the state to provide as well for this phase of education in training teachers for this work as in training teachers of arithmetic, of geography, or of language; that it is the business of the state to help create a better attitude toward the betterment of rural and village conditions and especially to train children to be men and women who will organize such homes that the homes themselves will be enjoyable to old and young and be incentives to patriotic and loyal citizenship. We can teach civics and talk about citizenship but we shall get very little civic righteousness or undefiled patriotism unless we can establish a wholesome and nourishing background of excellent homes and home life, and I believe there is no other one movement which can be made to serve in the development of good homes and finer sentiments than the movement for better gardens, better home surroundings, and more attractive life away from the deadening influences of the factory and competition of the crowded city.

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The School Farm at De Witt Clinton Park.

BY HENRY G. PARSONS, NEW YORK CITY.

Our work in New York City is not connected with the schools directly. It is under the Park Department, and, therefore, by the laws of New York City, we are not allowed to teach. The work is strictly recreation work because it is in the Park. Those employed in the work are called attendants, not teachers, and when some of the would be teachers came in the spring looking for positions they were very much surprised at the questions they were asked, and probably a few of the questions would interest you. They knew it was gardening and they thought, perhaps, they would be asked some questions in horticulture, and they were, but when they were asked if they knew how to wash windows; if they knew how to sew; if they could cook; if they knew anything about sanitation or hygiene; if they had studied physical geography; their breath was taken away and they naturally wanted to know why so much was expected, and I thought you would be interested in our view-point.

The person in charge of the garden should have either an agricultural or horticultural training, either from a school or college or from actual experience in commercial work, for it will help matters very much. But it is not absolutely essential, for that kind of information you can get from a great many people. It is better that the head of the work be of the kind that knows how to acquire information. Gardeners and florists are always enthusiasts about their work and usually quite willing to give helpful advice. A man or woman may be a good gardener and yet not suited to run a children's garden. The persons who get along best with the children and who get the most out of the garden for the children, are jacks-of-all-trades. If a person has known poverty and has been forced to do things with their hands by their own efforts, if they have had to do with the things of life, and, at the same time, they are educated people and they connect these things with life's problems, they are able to place the garden and its connection with life in general before the children as nobody else can.

In our garden we do all these things. The second year we established a tiny farmhouse in connection with the garden, and so introduced the spirit of the home in the play. If a teacher cannot cook, and does not know something, it need not be much, of the question of nutrition, and what the simple vegetables of the child's plot are expected to furnish us when placed upon our tables, how far can she go with practical information in answering a child's questions. Indeed she will not be able to stir the child's mind to the questioning point. If the teacher has only that class of information which is obtained under the head of nature study they are able to talk about how a bean sprouts; but if they have been fortunate

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enough to have had an agricultural training, they will be able to tell much more about the sprouting and later on the more important facts of the bean as a food and the great part it plays in the economy of the world.

The child grows beets and should learn how to select good beets. Many children have to do the marketing. They should know how to get the best value for their money. The children should know the difference between the radish which they buy at the store and the radish they grow in their garden. We tell our visitors and children that you cannot buy at Sherry's radishes like those we grow in our little gardens. The teacher should be able to tell the children facts about the radish that will have a live interest to them. The radish furnishes a juice with some minerals in it; but in its growth it so combines the minerals and water and carbon from the earth and air as to give the juice a peculiar value to mankind. Look in the dictionary for anti-scorbutic. It is because of its value as a remedy and preventative of scurvy that the radish has been so highly thought of for thousands of years. It is one of our oldest known vegetables. Now the teacher who merely takes a course in horticulture may come into the children's garden quite unequipped, as compared to the teacher whose natural tendency has always been that of the jack-of-all-trades.

I had some experience with a teacher who had graduated from a fine agricultural college, specializing in nature study. But she had not studied soils, and in our garden we have a great variety of soils. We have clay of several colors and sand of several colors, and I had expected to rely on this teacher for such information. She had studied more entomology than I had, but she had not studied about the things which we wanted to know about. The ladybug and aphis are thick in our garden, but she could not talk familiarly about them. She objected to the handling of worms. When a boy or girl brings a great big caterpillar in the middle of their hand to make inquiries and the teacher shies at it, the child does not ask why, but because of the teacher's attitude instinctively thinks, "It will hurt me." We really have comparatively few insects or animals that children cannot handle without injury. If the teacher causes the child to fear the unknown, because of her attitude, she has done the child a wrong, and closed many doors of interesting information in the world of nature.

I think the training of the garden is ideal for women who want to be mothers. In the little house and garden the children play the game of life in miniature. Washing, ironing, sewing, sweeping, dusting, cooking, entertaining guests, planting the vegetables in their little individual farms, weeding, watering, watching the insects and from this watching learning to protect some insects and to destroy others. Some nature study teachers instil a false sentiment about taking life. We had a number of visitors one day who were shocked to see a little girl farmer kill a butterfly. But the small girl knew more about the cabbage butterfly than the tender-hearted ladies, and was able to show a reason for its

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destruction by taking them to the badly eaten cabbage heads. Shall we grow cabbages or shall we grow cabbage worms? If both are present one must die, and the decision rests with us. We do grow some cabbages every year and allow them to be destroyed by the worms, so that the children will know the reason for destroying the white butterfly. We should not teach children that it is wrong to take life, for the basis of the world is that one life furnishes the means of life to another by dying in the act. And if we are to live successfully we must destroy other life which would injure us. The best instruction would teach the child to distinguish its friends from its enemies. We class our insects under three heads: good; bad; unknown. The good we protect. The bad we destroy. And everything else we let alone because we do not know whether it is worth more alive or dead. Mosquitoes, flies; the farther we go into the possibilities of the garden the closer the real home life is bound to it, and the mere horticultural side sinks farther and farther into insignificance.

The teacher and children are together studying the elementary laws of life, and learning rules of life that will be applicable anywhere. Not in the garden only, but in the home, the school, and on the street.

I took the class from the N. Y. University Summer School, who were studying to teach in children's gardens, to visit our garden last summer and the children cooked and served us with a meal made up of the products of the garden. We have learned that nearly everything that we grow in the garden is edible in some country. But all the information that is gained appeals more to the teacher than to the child. The child wants to go to the garden because it is the most interesting play they know. Here they can use their hands and their imagination. Here for a time they possess the earth and here the small farmer has a chance to be the ideal toward which we are striving for him, the normal child.

School Garden Reports.

Report of the South End Industrial School Garden, Roxbury, Mass.

BY S. MYRTA ABBOTT, TEACHER.

First Prize, Class A, 1906.

The garden class, in connection with the South End Industrial School and made up of pupils from that school, was first organized in the spring of 1902. The garden that year was in Medford, where use was given of a piece of land free from expense, and the garden children journeyed from Roxbury to Medford once each week to tend their plots. In the summer

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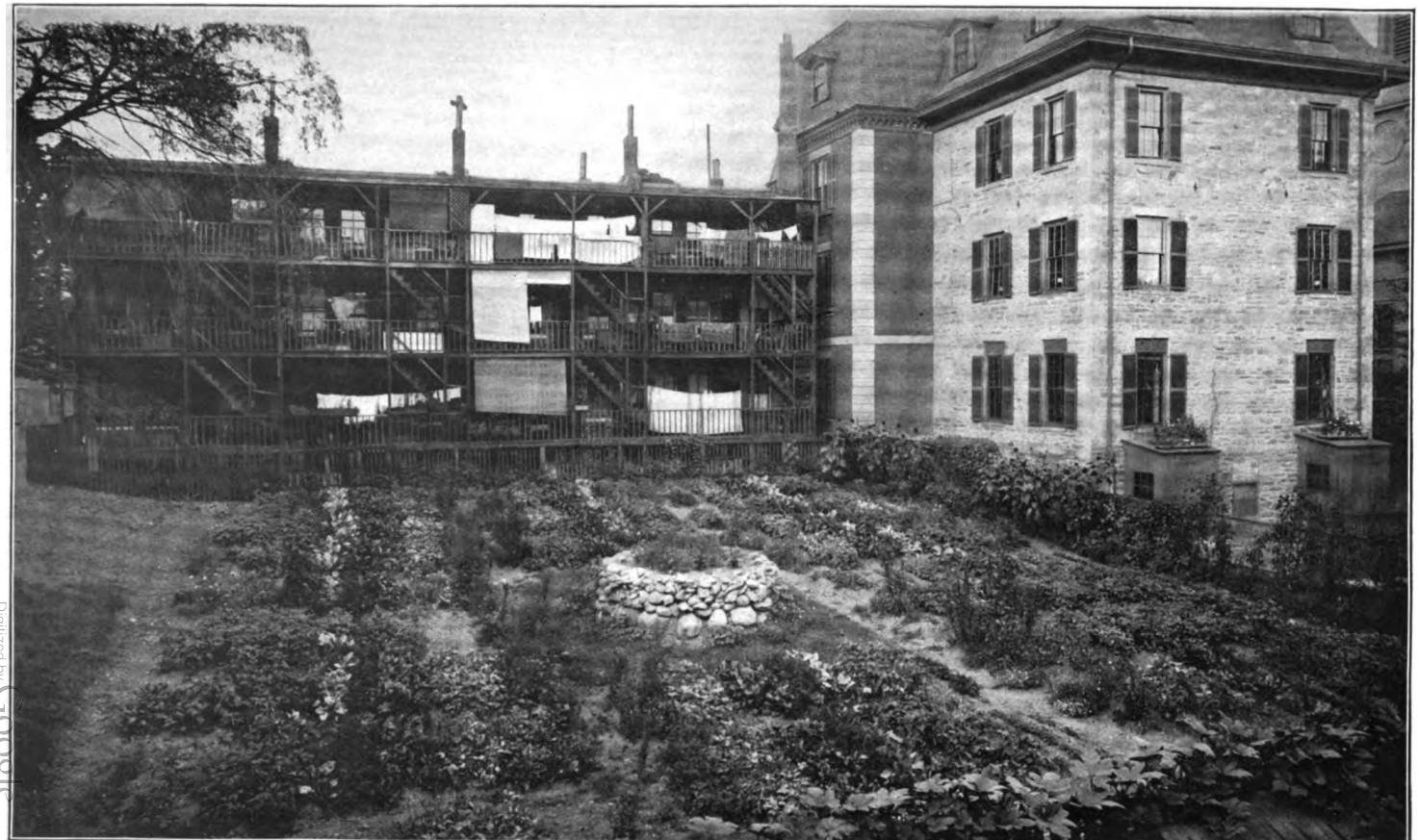

SOUTH END INDUSTRIAL SCHOOL GARDEN ROXBURY

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of 1903 the experiment was tried of cultivating a portion of the school grounds at Bartlett Street in Roxbury. This experiment was not a great success for although the splendid shade trees thrived, because of the cultivation about their roots, the gardens did not. Accordingly — for garden work had become a fixture of the school — a lot, adjoining that of the school and situated between rows of tenements, was purchased and here there has been a good garden for three summers under the patronage of a Garden Committee of the Industrial School.

The garden plot is 54 ×120 feet and is divided into 25 individual plots arranged symmetrically as may be about a stone pile in the center of the garden. A three-foot border for annuals and perennials surrounds the garden on three sides. For the cultivation of this plot three classes each week of two hours each have been found necessary. Thus each child spends, under the supervision of the teacher, six hours a week in the cultivation of his garden.

The care of the gardens has been untiring and in produce each child reaped the result of his faithful work. A record of produce for the summer of 1906 was kept and is submitted below:

Lettuce, 358 heads; Carrots, 803; Beets, 578; Beans, 358 quarts; Spinach, 61 quarts; Parsnips, 394; Parsley, 158 quarts; Kale, 103 quarts; Kohlrabi, 332; Radishes, 243 dozen; Squash, 12; Pumpkins, 4.

In connection with the school garden there have been started home gardens and window boxes supervised by one of the Garden Committee. The greatest interest has been taken by all the members of the class in these home gardens which are surely deserving in their aim to beautify squalid surroundings with plants and flowers.

On the same day as the fall exhibition of school gardens by the Massachusetts Horticultural Society there was held in Roxbury an exhibit of products of both school and home gardens. Individual prizes of books on gardening, of tools, of plants and seeds were awarded to the three best gardens of each group, namely, school and home gardens.

Garden work has proved especially beneficial to children in Roxbury, for so many must needs live in the congested tenement districts. To foster the child's inherent sense of beauty, to teach him to do useful work with his hands, to get results and to appreciate these results, have been the aims of the promoters and benefactors of this garden work at the South End Industrial School.

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Report of the Orphans' Home Garden, New Bedford, Mass.

BY E. M. FLETCHER, SUPT.

Second Prize, Class A, 1906.

For three years we had a tiny garden in a corner of our large playground. Flowers and vegetables crowded each other in every foot of the plot, though we added a few feet to the enclosure every year. The children were so keenly interested that the much needed vacation employment for our boys and girls was suggested. Encouraged by the success of our small experiments, we planned a larger work.

This year the owners of adjoining lots kindly gave us the use of a plot 180 × 50 feet. The land is level and easily worked, though the witch grass has been hard to overcome after the first turning of the sod for years. The grass will be less troublesome next year. No definite study of soil formation or fertilizers was attempted this season. Incidentally we learned that different fertilizers are best for crops that grow above and below the ground. More attention was paid to the condition of the soil, impressing the fact that it should be well pulverized, not too dry, yet to be easily crumbled. The fineness and firmness of the soil preventing evaporation of the water supply keeping it near the surface for seeds and the roots of plants. The garden was plowed April 17th. Five tons of dressing were wheel-harrowed in and the planting began at once.

With tape and line and drawn to a scale, the walks and individual beds were laid out. The two main walks running north and south, dividing the three rows of beds, were four feet wide. The walks between the beds were two feet wide.

The beds were 13 × 4 ft. and occupied a little less than half the plot.

The larger part of the garden was worked in common by all the children. A rotation of crops was planted, as well as in the individual beds.

We had a supply of good tools and learned to care for them properly. Some of the tools were given, several other tools, a watering pot, and photographs of the garden were paid for by money given by interested visitors, of whom we had a great many.

The greater part of our flower seeds and many of the vegetable seeds were from the Government Agricultural Department.

The cucumber, melon, squash, carrot, onion, beet and parsley seed, also the pease and beans, were bought with the money received from selling flour barrels. Later, in the same way, 58 tomato and 300 celery plants were bought. 20 cabbage, one dozen cauliflower plants and some sweet potatoes from the Azores were given us. Some valuable dahlia bulbs were loaned for the season.

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Canna bulbs, salvia plants and hydrangeas were given.

On the east side of the individual beds, next a stone wall, we had dahlias, poppies, marigolds, balsams, and salvia. On the opposite side were sweet peas and a row of Early Rose potatoes.

Across the fifty foot front, near the street, there were dwarf nasturtiums, mignonette, pinks, and asters.

After the beds were made, numbered and apportioned to the children, a line was stretched across each row from north to south, held in place by a child in each walk, the seed furrows made, and seed planted.

Every bed had two rows of beets, with spinach in alternate beds, carrots, onions, lettuce, radish, and flowers selected by the owner of the bed. How deep to plant the seeds was a question in face of such varying theories. "Four times the diameter of the seed," or the usual one inch average. Both methods were tried with little difference in result.

The distance between rows was studied, also the distance apart of the various plants in their rows. We discovered the quantity of seed required for a certain space, carefully noticed the quality of different seeds, and learned how and when to transplant. The vegetable rows in the entire garden ran north and south to get the full benefit of the sun.

The children made three plantings of radishes and lettuce. String beans were planted where spinach had grown.

Only a few of the common enemies attacked the flowers and vegetables. Cutworms injured the sweet peas and rust spoiled a few of the beans. That experience was general in this vicinity, however.

In the common garden we had sixteen kinds of vegetables. There were three plantings of corn and of beans, yielding from July to October, and two plantings of pease, of which the first were picked on May 30. Part of this ground was used for celery later.

In the absence of definite knowledge the conflicting theories regarding the cultivation of celery are, to say the least, bad for the celery. Though the crop is not a failure a new theory will be tried next year.

All other crops in the individual and common gardens were most successful.

There was a constant supply of flowers from the annuals, perennials and bulbs. From dahlias, gladioli, and cannas we have many seedling bulbs for use next year.

The children were delighted to take flowers and leaves from their own gardens for botanical and drawing studies at school, or to carry a handful of flowers to a favorite teacher. This same feeling of ownership and a dawning sense of self-support added a flavor to the vegetables as they appeared upon their tables from day to day. There was also the spirit of a division of income with younger brothers or sisters in the home, which was not least in value among the many profitable lessons during the long season.

There were many instances that confirmed the theories regarding the advantages of school gardens and showed the logical reasons for the exis-

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tence of ours, in particular. To an institution where children are trained to the activities of self-dependence and helpfulness to others who may be dependent upon them, perhaps the most significant feature is the practical training through which a boy may find in the gardener's occupation an honorable business for life.

Report of the South Natick Garden Club.

BY S. MYRTA ABBOTT, TEACHER.

Third Prize, Class A, 1906.

The South Natick Garden Club, which owes its origin and maintenance to the kind generosity of Mrs. R. G. Shaw of Wellesley, was organized in April, 1905, and is composed each year of sixteen girls and boys selected from the South Natick Grammar School. The garden is situated in the Hunnewell Playground close to the Charles River, a situation desirable, both because the river mists keep the soil moist, and the children can fill their water cans very easily. The portion of ground chosen was 40 × 120 feet and, after it was plowed, was enclosed by wire netting with rustic posts at the entrance and two exits. Each individual plot was staked off 12 × 14 feet; the rest of the enclosure was staked off for a two foot border, extending on all four sides just within the wire netting and for paths.

It was found best to divide the sixteen members of the class into two sections; the first section meeting on Tuesday afternoons at half-past three, and Saturday mornings at half-past nine; and the second section meeting on Thursday afternoons at half-past three, and Saturday mornings at eleven. By this arrangement each child worked in his garden, under the supervision of the teacher, for at least four hours each week.

In the beginning the garden was plowed, the paths were dug, and the netting was put up. Since that time, the children have done all the work, the staking off, the manuring, the digging each fall and spring, and the fertilizing.

Notebook work was kept up systematically along with the other work. Products were counted and recorded; a table of dates of planting was made; a diagram of each garden was drawn; and a diary was faithfully kept each garden day. From this diary one may learn that the spring months — April and May — were spent in raking off leaves from bulbs, spading manure into gardens, preparing beds and borders and planting seeds; that June was given over to gathering of early crops and replanting; that July was a busy month spent in weeding, always weeding, in gathering crops, and replanting; that August was a month devoted to watering and cultivating the soil; that September was a time of gathering

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ORPHANS' HOME SCHOOL GARDEN, NEW BEDFORD

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crops, of gathering seeds for next year's planting; that October was a month of harvest and clearing away; and that November was a time for covering bulbs, spading up beds, and thorough manuring.

Each child in his allotted 12 × 14 feet has had both summers a row each of parsley, radish, beet, carrot, purple-top turnip or spinach, kohlrabi, parsnip, onion, golden-eyed wax beans, tomato, cabbage, cucumber, and lettuce; and of these by care in rotation he has had four crops of radish, two of wax beans, two of turnip, and three of lettuce.

The two-foot borders which extend on all four sides of the garden and which each child has taken keen delight in were gay with wild sunflowers, wild asters, zinnia, sweet-william, bachelor's button, snap-dragon, cosmos, mignonette, California and Shirley poppies, French and African marigolds, asters, calendula, sweet alyssum and candytuft; and tulip, narcissus, daffodil and hyacinth; and fox-glove, Canterbury-bells, hollyhocks, rudbeckia, pansies, dahlias, coreopsis, forget-me-not, dianthus pink, and columbine. A part of the border was devoted to a seed-frame. On the netting were nasturtiums, sweet-peas, morning-glories, clematis on the rustic posts, honey-suckle; also gourds, cucumbers, pumpkins and — after a year's experimenting, tomatoes and summer squash.

The produce was sufficient — were every other testimonial wanting — to prove the worth of the gardens.

The results of this two years' garden work in South Natick have been manifestly good. Everything has been provided most bountifully, tools and a neat little house, set conveniently in the bushes, to keep them in. Although but sixteen have profited yearly by the work and instruction, yet the influence of the garden has spread far beyond the immediate members of the garden club. Little produce has been sold, by far the greater part has gone to the homes. Parents have, of course, become interested and, in a few cases, have helped prepare bits of land at home for a vegetable garden. Flower beds and borders, such as everyone in the country has, have thrived better because of the application of liquid manure, ceaseless cultivation, and soil mulching; knowledge of which was gained in the "Garden." There is every reason why the garden at South Natick should be a success; it is charmingly situated; it is most liberally provided for; and it is an object of interest and delight and even pride to all passers-by who have only good-will for the South Natick Garden Club and its Garden.

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Report of the Wellesley Village School Gardens.

BY ALICE PARK, TEACHER.

Awarded Honorable Mention, Class A, 1906.

The Wellesley School Gardens were started on May 5, 1906. They were situated in a lot behind the Hose House which had formerly been a very neglected corner used as a piece of the road, and then levelled off and fenced in by the Fire Department. The Department very kindly loaned it to the Village Improvement Society for the Gardens. There were sixteen plots in all, each ten by twelve feet, eight on each side of the middle path. The children had to pay fifty cents a piece for the privilege of having a garden. All sixteen showed great eagerness and interest in the work.

Each child was provided with a hoe, a rake, and a spade bearing his number, and there were also a dozen trowels and weeders, four watering pots, and grass shears for general use. The gardens were divided into eleven ten foot rows twelve inches apart. The three rows bordering on the middle path were devoted to flowers and the rest to vegetables. There was also a border two feet wide all around the outside fence. On the first day, May 5, peas, lettuce, sweet alyssum, and radishes were planted; on May 8 corn, pumpkins, and dwarf nasturtiums were planted in the gardens and gourds and dahlias in the east border; on May 11 Swiss chard and beets were planted in the gardens while scarlet runner beans, trailing nasturtiums, and sunflowers were put in the south and west borders. It was on this day that the radishes and sweet alyssum were found to be well up, much to the delight of the young enthusiasts. Golden wax beans and garden cress were planted in the gardens on May 15, and morning glories in the west borders. At first it was very dry and the children had to water every day, but in July and a part of August there was so much rain that no watering was needed and everything flourished. Crops which were supposed to be failures suddenly took a start and grew at a very lively pace. Lettuce and beets were the only things that had to be replanted. On May 18 tomato plants were set out, three to each garden, and zinnias were also planted. By this time the radishes, peas, sweet alyssum, and lettuce were all well up. On June 5 the first radishes were pulled and on June 29 the Alaska peas and some of the Nott's Excelsior were picked. About the second week in July all the flowers were in full bloom and the gardens began to have a more festive look. The flowers were looked upon with scorn by many of the boys as taking away just so much room from the vegetables, but they were objects of great pride to the girls. On July 17 all the pea vines were pulled up and the beans began to need picking, the Swiss chard also came at this time, and on July 24 the first tomatoes were taken home.

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All the children asked repeatedly if they might have gardens another year and their enthusiasm and willingness to work have been great all summer, except in very hot weather, and in the very weedy times. They have all been asked whether they felt that the gardens had helped them in anyway and all have agreed most heartily that they have. The small boy came with his mother's recommendation that he had never done anything for more than three weeks without losing all interest and pleasure and it was this boy who was never late, who was absent twice only, and who was the first to ask (about July 1) if he could have his own garden next year.

Many of the boys on entering the gardens were very doubtful whether any crops would ever be taken away by the rightful owners as so many boys would steal and destroy at night, so they said. No such act of violence was ever committed and the gardens have been entirely unmolested. Even on the Fourth of July there was no harm done, one or two burnt cannon crackers being the only evidence that there had been a Fourth.

Of course it is difficult to tell in just one summer how much a factor the gardens have proved in character building, but it seems impossible that so much continued application and industry, and such interest in growing things could fail to be of moral benefit.

Report of the Cobbet School Garden, Lynn, Mass.

BY PHILIP EMERSON, PRINCIPAL.

First Prize, Class B, 1906.

The Cobbet School Gardens are completing their fifth year of development, and make report on this season's work and advance. All lines of garden work previously tried have been continued: the wild garden, the bed of geographical plants, spring bulbs and annuals, hardy flowers, vegetables, the use of cold frames, the utilization of garden material in the drawing and written work of the several classes, and work in nature study that shall make the garden work intelligent. The work along several lines has expanded: in place of the patches of grains and fiber plants raised for several years past, small plots of the typical hardy grasses of farms and lawns have been established to familiarize the children with their characteristics; a variety of named narcissi and other spring bulbs are being established this autumn; a larger variety of annuals were raised from seed this year than ever before; the beds of hardy flowers were extended and both their variety and total quantity were multiplied. While no more space was given vegetables the number of varieties successfully grown was increased; to the twelve sashes of cold frames already

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in use we have this autumn added eight more. Some new lines of work have been successfully undertaken. Our school yard has been outgrown and we have established large plots for multiplying hardy plants in the yards of two lots adjoining the school, and one in a church yard. A plot of some 4500 square feet in another yard adjoining the school has been used for individual gardens for every child of the fourth grade, and for the vacation school in the summer. The method of caring for the gardens by pupils and teachers has been most successfully developed to the end of securing the most training to the pupils and good gardens therewith. The year's success may be measured financially. The treasurer of the Cobbet School City, Master Ellsworth Stone, has issued checks for over a hundred dollars worth of business. The sales of hardy plants and other products from the garden have amounted to some forty dollars. We are proud to have won the two first prizes of five dollars each for the best exhibits at the exhibitions held under your auspices in Boston, and at the two exhibitions of the Houghton Horticultural Society of Lynn the school won sixteen first prizes, eight second prizes and six gratuities, amounting to some eighteen dollars in all. We send herewith exhibits of school work showing how this aids the garden work and is aided by it. Finally the Principal has by lectures before bodies of teachers and village improvement societies, and by articles contributed to educational and popular periodicals, shared in spreading the movement to other communities.

The garden of individual plots for fourth grade children has been a most satisfactory feature of the year's work. This practical experience of every boy and girl in preparing the soil, planting, weeding, cultivating, harvesting, and in every way caring for a variety of quick growing crops, — radishes, lettuce, scullions, beans, beets, candytuft and the like, — lays the necessary basis for successful home gardens. This spring one ambitious sixth grade boy, a lawyer's son, bought a half dollar's worth of seeds, and planted every sort an inch or more deep. Of course but few sorts were able to push to the surface and grow. The little folks that are trained to plant their seeds correctly, first discussing what is advisable, then watching their teacher plant a few, then planting themselves with the teacher's helpful criticism, soon learn to plant so as to secure results.

The large measure of success we have attained this year has been in considerable measure due to the special teacher assigned to the school by the Committee. She is given no class, but spends most of her time in transforming misfits among the children into pupils who are well placed in their grades, enabling some to skip a grade, and saving others from being kept back a year. In autumn and spring she uses some days to take little groups of the fourth grade boys and girls out for periods of work at their individual gardens. The plan should be adopted wherever a school has such individual garden plots.

During the summer the same garden was used by a large class from the vacation school, and the Cobbet Principal prepared directions for the vacation school teachers, several of which directions are enclosed herewith.

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During past years the school room experiments, discussions and text conclusions have been prepared by the Principal. This year we have used the textbook entitled First Principles of Agriculture which is published by the American Book Company. We find its experiments and simple, practical treatment of topics admirably adapted to elementary school use. Certain topics have been assigned for emphasis in every grade. Use of the book has improved this phase of garden work, and we recommend the book to others.

From our experience in propagating hardy plants, we would heartily recommend the work to other schools as finely suited to school work. It affords opportunity to study the life history of these hardy plants throughout the cycle of a year's seasons, it awakens a vital interest in a plant as an individual that cannot be true of annuals in marked degree, and by the dissemination of plants propagated by the children to the homes of the district a valuable measure of civic improvement is secured. Some hundreds of hardy plants were given away in May to children who had kept good home gardens in 1905, and dozens of chrysanthemums were presented to our fellow schools in Lynn. About eight hundred plants of many varieties were sold to citizens and schools at an average price of about five cents a plant. While this provides an income to the school garden it also enables citizens to purchase plants most conveniently and at half the price a dealer would be obliged to charge even when a quantity should be ordered. Our own stock of hardy plants has been notably increased: last year we had seven or eight varieties of unnamed iris, we now have eighty named varieties of German, Spanish, English and Japanese iris; in 1905 we had two sorts of hardy chrysanthemums, we now have some seventy named varieties; last year we had a half-dozen named varieties of hardy phlox and other clumps of unnamed sorts given by home gardens of our district, since then we have purchased over two dozen of the best varieties to be obtained as a basis for future work in propagation of these plants.

The Cobbet yard has many large elms and maples, and it was necessary to place the gardens at the borders of the school yard although this brought them beneath the trees. Since most of the beds are shaded by trees above, and since the soil is impoverished by the greedy roots of the trees, it is a continual struggle to get satisfactory results. Moreover the sunny southwestern side of our tall school buildings is occupied by the boys' playground, which is too small to take any space for growing plants in preference to growing boys. We are still experimenting to find what plants will thrive best on the northeast side of the building, which faces the street. We have overcome our lack of space in our own yard, at the center of our city, by prevailing upon our neighbors to share with us unused portions of theirs; we have overcome our lack of funds with which to purchase soil, seeds, tools, and special varieties of plants by raising money by sale of the products of the garden; we have overcome our own ignorance of how to grow vegetables and flowers by combining study-

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of what others have done with continual experiments on our own part; and we intend to overcome remaining obstacles so far as the demands of other important phases of school work will afford time and energy. We have been greatly encouraged to continued effort in the past by the approval of the Massachusetts Horticultural Society, and highly prize this opportunity of placing our results in comparison with those attained elsewhere.

A similar account might be given in detail of cannas, hardy lilies and other species. We have also secured other new species and varieties from seed in our cold frames. A new phase of our work in disseminating hardy plants, and of educating the children thereby, has commenced this year. The pupils gather the seeds of the annuals and the hardy plants in the gardens, and another spring these will be both given away and sold to children and others in our district for planting at home. It will be noted that this gives familiarity with the entire cycle of a plant's life, on the educational side.

We find that the school garden is a means of educating the children in many other lines than agriculture. It occasions much manual training in the use of tools in construction; there are stakes and labels to be made; stakes and fences to be painted; glass to be set in cold frame sashes; straw mats to be woven to cover the cold frames; and much work with wood for varied purposes. The gardens give opportunity to train the pupils to manage not alone concrete ideas and to manage things, capabilities that are slighted in work with books, but they also afford opportunities for training boys and girls to manage one another, and there is so little coöperation in constructive activity in the average school that the schools give practically no training to the capability that all possess of managing men. We believe that while a garden of individual plots has essential values which should make it fundamental to any well-rounded school garden scheme, yet the general school garden in whose care all share, and wherein no individual pupil owns specified portions separate from his fellows, has superior values in many ways. At the Cobbet School the gardens are now in the joint care of the Principal and a Garden Commission appointed by 'the Mayor of the boys' playground government. The Commission appoints such assistants as clerks, salesmen, draughtsmen, and photographers, while all the boys are organized into groups of three for caring for the garden. Every group has a foreman who is responsible to the Principal and Commission for the work and order of his workmen. Written contracts giving in detail stents of work in spading, weeding, seeding, transplanting, etc., are prepared and assigned by the Commission to the foremen on their application for work. They apply to their teachers for such school time as will not necessitate their absence from lessons in which their standing is low, and during the hour or so of time thus granted work out the contract. They then report to Principal or Commission for approval of their work. The character of the second contract given to any group of workers depends upon the efficiency shown in performing

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the first contract. The plan has proved practical in our experience and we commend it to others.

The measure of success we have attained has been in the face of difficulties rather than in view of uniformly favorable circumstances.

Report of the School Gardens, Fairhaven, Mass.

BY MISS ANNA BAILEY TROWBRIDGE.

Second Prize, Class B, 1906.

Although school gardening is now accepted as part of the training of the boys and girls in the grammar grades of Fairhaven, yet the interest and enthusiasm aroused four years ago has never waned, and each year the results of the youthful gardeners attract more and more attention.

In reviewing the work of the past season we feel that a more thorough, practical knowledge has been gained in the contact with the soil than ever before; pupils have worked out for themselves the causes of success or failure in their little garden plots; over-abundance of moisture, sterility of soil and drought have been encountered, discussed and dealt with in the most feasible manner. In this miniature farming village good-fellowship has existed at all times, and intense seriousness emphasized the work of the season just closed.

In the very early spring, before labor could be assumed out of doors, a definite series of lessons, relating to gardening and illustrated by experiments, was carried on in the school room. A study of soils was made, the essentials of germination considered, the effect of moisture, depth of planting, and kindred topics debated upon. Notebooks were kept showing drawings which served to illustrate the experiments performed by the boys and girls during their laboratory period. With the month of May work was begun in earnest in the open air. The plan of the gardens, as shown in the report of the Massachusetts Horticultural Society for 1905, was carried out as usual, the method of planting still the same. The east border was devoted to flowers and vegetables, and where a row of zinnias, phlox, or lettuce failed to develop for a young worker, there was an abundant supply to be obtained from this well-stocked border. Thus transplanting was taught and effected.

Some of the native shrubs as clethra and viburnum which were placed in the gardens last spring by ambitious boys bloomed profusely and that moisture-loving shrub, the *Rhododendron viscosum*, adapting itself to its new environment offered us its fragrant blossoms.

A study of our most common weeds was carried on through the spring and summer months. First, it was necessary that every boy and girl

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should be able to recognize at sight these obnoxious plants; so we devoted some time each day in making the acquaintance of pigweed, ragweed, purslane, and others; then their method of propagation was noted and the best method of extermination determined upon. It seemed difficult for some of the little nature students to comprehend why it was necessary to devote so much care and attention in order to secure the most successful crops of zinnias or ageratum, while that daintiest and most beautiful of flower-clusters, Queen Anne's lace (wild parsley) matured without care or attention and was never allowed the companionship of our garden plants.

In May the boys brought from the woods some ferns which were new to our wild garden as the hay-scented fern (*Dicksonia punctilobula*), the lady fern (*Asplenium Filix-foemina*), and the silvery spleenwort (*Asplenium thelypteroides*), besides adding to the species already possessed.

The middle of August it was decided to hold an exhibition of garden products, showing results of amateur work. The little people had, with few exceptions, been in attendance regularly every Tuesday morning during vacation days to care for their possessions and carry home their baskets of flowers and vegetables, and so, that the friends and parents might have a better knowledge of what these young cultivators of the soil were accomplishing, tables were placed in the shade of the trees bordering the garden and each boy and girl prepared and arranged a display of whatever his garden contained: corn, beets, turnips, carrots, beans, tomatoes were to be seen, as well as a wealth of zinnias, cosmos, verbenas, candytuft, alyssum, ageratum, nasturtiums, calendulas, phlox, etc., Although the gardens receive many visitors on week-days and especially on Sundays through the summer months, yet a large number of interested ones came to the exhibition and commended the work of our young folks.

We are often asked, "Of what use is this knowledge of gardening to our boys and girls?" The public schools of today are a power in the country and the average boy or girl who, during his school life, has had two years of systematic work in the school garden has acquired a spirit of thrift and economy, a love of neatness and beauty in surroundings which sooner or later extends to the home. It is the home-loving boys and girls, the boys and girls with an interest in home environment who make the best neighbors, the best citizens, and the best communities. "To add to the resources of one's life — Think how much that means!" says John Burroughs.

So Godspeed to the school gardens of America and the little people with the spade and hoe!

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THE TRACY SCHOOL YARD, 1905

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Improvement of School Grounds.

Report of the Tracy School, Lynn, Mass.

BY FRANK L. WHIPPLE, PRINCIPAL.

First Prize, 1906.

Permit me herewith to submit a report of the Tracy School garden, Lynn, Massachusetts, and of the school yard improvements.

At the beginning of the school year 1905–1906, the Tracy School yard consisted of about 25,000 square feet of land, in the form of a trapezoid, the parallel sides being 225 and 275 feet respectively. The width 100 feet. There was no school garden in the yard and the condition of the grounds was that of the ordinary city school yard.

Improvements.

During the year the city authorities gave to us an addition to the grounds of about 15000 square feet of land. Two old buildings were torn down and removed; three old cellars in the new lot were filled; and a public dump was removed from the land. Both the original and the additional lands were graded by the addition of about 200 cubic feet of gravel; 100 feet of curbing has been set along the street borders of the grounds; a two-rail gas-pipe fence has been set along the northern border of the yard or on the Linwood street side of the yard; a new board fence has been set along the eastern boundary; an old apple-tree has been removed and two horse chestnut trees have been trimmed into shape; a water pipe has been encased near the center of the yard for watering or fountain purposes; and the yard or grounds have been beautified by the plotting of several flower-beds.

Gardens.

The Tracy School gardens consist of five flower beds, well laid out.

1. A border garden. This consists of a border garden along the eastern side of the yard 10 feet wide and 340 feet long, the ends broadening to a width of twenty or twenty-five feet. This space was in early spring filled with soil and bordered with sod one foot in width. The broadened ends were set out with shrubs to the distance of fifty feet from the extremities and interspersed with such plants as the Japanese sunflower and golden-glow. Between these broadened ends and for a distance of two hundred forty feet were planted in sections seeds of the more common annuals. Annual, biennial, and perennial plants, were contributed by the children and carefully planted and appropriately arranged in this space. In the background and along the fence were set dahlias and

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hollyhocks. In front and along the border of the green sod for the entire distance of 340 feet, a band of sweet alyssum, six inches wide, and another of portulaca of the same width, have been continually in bloom. The general effect of this garden has been a source of admiration to the pupils and neighbors during the entire season. From this plot were exhibited at the fall exhibition of the Massachusetts Horticultural Society on September 15, in Boston, a collection of 160 bottles containing different varieties of annuals, biennials, and perennials. At the fall exhibition of the Lynn Horticultural Society the Tracy School exhibit consisted of a collection of 272 bottles with as many varieties and shades of the common flowering annuals, biennials, and perennials.

2. Two crescents. Within the curved portions of the border garden are two crescents, 30 feet long, and in their widest portions, 6 feet wide. These crescents have a border of green sod one foot in width. Within this a border of ageratum and salmon colored geraniums. These crescents being situated in the northeast and southeast corners of the yard have given a very beautiful effect to the border garden, and to the yard in general.

3. A center piece. The center piece, so called, is situated in the center of the school yard. It is 30 by 45 feet and in the shape of a rhombus, or "diamond." It serves as the dividing line between the playground of the boys and girls. In the oval center of this rhombus is a bed of cannas. Deep red geraniums surround the oval. The bed is tipped with silver-leafed geraniums. This has been the beauty spot of the whole yard during the entire season. This also has a border of green sod one foot in width.

4. A semicircle.— At the southern end of the school building is a semicircle grass-plot, 50 feet in diameter, bordering on the Walnut street side of the yard and having a Japanese barberry hedge along the street border. In the center of this semicircle is an oval flower-plot, set with a border of ageratum and within a bedded mass of salmon color geraniums.

5. On the southern end of the school building climb four Boston ivies, planted by the four highest classes of the school.

Material.

The soil was furnished by the city; or, in other words, it was reclaimed from the additional lot of land used for the yard extension. Upwards of one hundred cubic yards were thus reclaimed. The fertilizing substance was solicited by the boys from a neighbor and wheeled to the school grounds in wheelbarrows, after having been removed from the stable cellar. The sod was solicited by the boys and cut by them a mile from the school building. The shrubs were bought with money raised through an entertainment given by the pupils of the school. The seeds were bought with money contributed by the teachers. Plants of various kinds were sent in by the neighbors. Tools were contributed by a friend of school gardens, etc.

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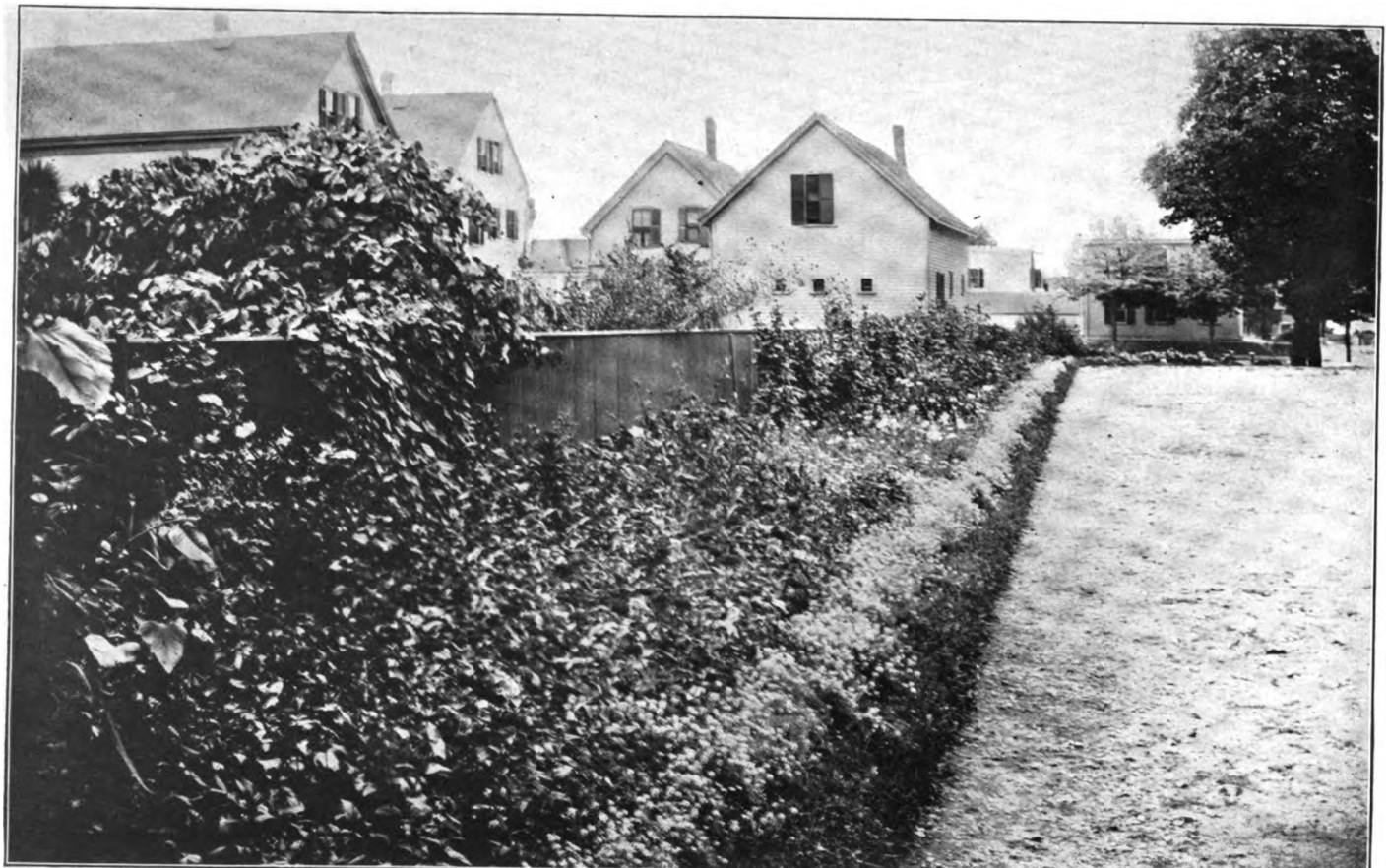

THE TRACY SCHOOL YARD, 1906

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Labor.

The gardens were designed by the teachers and pupils. The soil was drawn by the city authorities. The smaller gardens were made by the pupils. The sodding was done by the pupils. The shrubs were planted by teachers and pupils. The seeds were planted by the pupils under the direction of the teachers. The plants were set and transplanted by pupils under the supervision of the teachers. The watering and weeding by the pupils. In fact, practically all of the work has been done by the pupils, under the charge of the Tracy School City government, inspired by the teachers. The responsibility of the garden and school yard has been in the hands of the School City government from the beginning. During the vacation the committees appointed by this government took excellent care of the gardens and handed them over to the school in September in first-class condition. The photographs accompanying this report were taken on the last day of the vacation.

Prizes.

A special prize was awarded the Tracy School for a general exhibit of flowers from its garden, by the Massachusetts Horticultural Society, on September 15, at its fall exhibition, in Boston.

A first prize was awarded the Tracy School for the best collection of flowers from a school garden in the city of Lynn, by the Lynn Horticultural Society at its fall exhibition, in September. Ten other first prizes were awarded by the Lynn Horticultural Society for special varieties of annuals and perennials. This same society has also awarded to the Tracy School the first prize for the best school garden in the city of Lynn. Other prizes have been awarded but we are not at liberty at present to speak of them.

Results.

The Tracy School gardens have aroused in the hearts of the pupils a spirit of pride for their school. They have drawn the pupils and teachers closer together in a common interest. They have developed in the pupils a respect for the gardens of the neighbors. Through these gardens the children have gained a knowledge of flowers and their culture. They have aroused a desire in the hearts of the children to have gardens of their own. We feel, also, that they have had an influence in educating the finer nature of the children. The neighbors have also taken a pride in their own yards and have been seen working their old yards into beauty spots. The work has been highly spoken of by school authorities, parents, teachers, pupils, and neighbors. We hope to do more the coming year.

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Children's Home Garden Reports.

ROGER NEWTON PERRY, WORCESTER, MASS.

First Prize, 1906. (Boys.)

I have a garden 60 feet long and 25 feet wide. As soon as the snow was off the ground I covered it with manure that my father gave me. April 9 I made my hotbeds out of a window 6 ft. × 3 ft., filling it with manure two-thirds full and covered the rest with dirt.

The next day I planted tomato, celery, lettuce, and cabbage seed. Two days later I saw some of the seeds were up. April 19 my father let me take the horse and plow to plow the ground with. I evened it as fast as I got ready to plant my seeds. I made 2 drills across my garden and planted Gradus peas 2½ inches deep.

April 24 planted 4 rows of sweet corn, dropping 6 kernels to a hill and planting 2 feet apart. April 25 I made drills and planted sweet peas, parsnips, radishes, and onions. I covered the radishes about an inch, the rest 2½ inches deep. April 27 sowed my white Swede turnips 2½ inches deep. When they were some size I thinned them out.

May 2 sowed my parsley and beets 2½ inches deep. Sold my radishes. May 3 planted my second planting of sweet corn. Had 3 rows. May 5 planted pole beans and cucumbers in hills. To every hill of beans I put a pole into the ground and put the beans 3 inches deep. About the middle of May I transplanted 2 rows of lettuce, 4 of cabbage, and 1 of tomatoes, raised in my hotbeds. At this time my celery was looking fine. I went out to look at it one hot day and found almost every plant torn up and wilted in the hot sun. My dog thought she smelled a rat in the hotbed and dug up my celery hunting for it. I did n't feel very cool about it and looked for the dog but could n't find her. So then I set the celery out in small boxes and kept it very wet for some time.

May 29 thinned my beets. The middle of June I dug 3 trenches where I had had radishes and peas. Put in plenty of manure and set out my celery. I have had to bank it as fast as it grows to bleach it. Some squash vines came up in my garden and bore 68 lbs. of squash that I sold at retail. My turnips and radishes did not prove to be very good, but the rest of my vegetables were a success.

I had 12 plants of tobacco given me to set out. The most of my seeds were given me. My parsley, beets, and pepper seeds were bought. I did not know my peppers after they came up and hoed them up for weeds. I have not sold my celery or parsnips yet. I raised my vegetables for market and not for exhibition, and sell them as soon as ready.

I have sold more at wholesale this year, selling to stores and a restaurant.

From your farmer friend,

Roger Newton Perry.

Worcester, Mass.
Oct. 22, 1906.

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"YOUR FARMER FRIEND," ROGER NEWTON PERRY

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ALFRED BOISEAU, AYER, MASS.

Second Prize, 1906. (Boys.)

My garden is in a little valley back of the house. Half of it slopes west, and the other side to the east. The western side is somewhat sandy.

.I spaded up the land to the depth of nine inches and fertilized the soil with phosphate because the land was rather poor. My required seeds were radish, squash, peas, and nasturtium, but I planted others which were beets, potato, and tomato. I planted the peas and beets two inches deep and laid the seeds two inches apart. I planted the radish and carrot in a similar manner. Put the squash seeds in hills six feet apart and put four seeds in a hill. It may be interesting to know that I put six inches of loam over the ashes where I planted the squash seeds.

I planted the tomato in hill also. I dug holes six inches deep and put in them the plants which I had bought. In planting potato you have to cut a piece with the eye in it which I planted in rows. I raised both White and Green Mountain varieties. I planted the nasturtium seed about one inch apart and when they grew up and blossomed they were all colors. When they began to grow I watered them every night at sundown until they were able to grow themselves.

I pulled up the weeds once or twice a week. I had vegetables for the family during the greater part of the summer. Next year I intend to plant the seeds early enough for the June exhibition in Boston. I got the first prize for the best general collection among the second year boys in Ayer. For several years we have had an exhibition of children's garden products about the middle of September. This year we were glad to have Mr. Jenks visit our exhibition as well as our gardens.

Yours truly,

ALFRED BOISEAU.

AYER, MASS.
Oct. 29, 1906.

GLADYS LUCAS, READING, MASS.

First Prize, 1906. (Girls.)

My garden is 8 feet by 3 feet. The soil was very poor but papa has made it in very good condition by manuring it. I could not wait for papa to spade it so I spaded it myself, April 17, which is a back-aching job; the next morning I was lame and sore all over. April 19 trimmed the edge of my garden and planted my verbenas, marigolds, and pansies in a box. I kept them on the kitchen table until they all were up, then I put them on the backdoor steps. They were there only three or four days when my brother fell down the steps, boxes and all. I saved a number

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of my marigolds, two verbenas, and as my pansies were small, I could not save any.

April 19 also I planted my sweet peas outdoors. May 1 I saw the first sweet peas up. May 16 I planted my sweet alyssum, candytuft, dianthus, California poppies, mignonette, cosmos, bachelors' buttons, Drummond phlox, larkspur, and nasturtiums. I also have four geraniums in my garden which I kept all winter in the house. I watered my garden with a watering pot the first of the year, but after my plants were all up I watered it with the hose.

Out of nineteen different kinds of seed I had fifteen kinds come up. The insects did not trouble me at all. The weeds did not as I pulled every one I saw; so by watching very closely I got ahead of the weeds instead of the weeds getting ahead of me. As I had flowers the only use I could make of them was to give them to sick people and people that had none.

EDNA C. BROWN, AYER, MASS.

Second Prize, 1906. (Girls.)

I became interested in gardening this summer because my brothers have had home gardens for several summers.

My garden was dug up for me and I raked out the stones and smoothed it off. I planned where I would have the rows and arranged for the beds.

The first year was required to have beets, cucumbers, beans, lettuce, and sunflowers. I also had carrots and radishes. I put the beets and lettuce in beds, the beans, radishes, and carrots in rows, and the cucumbers in hills.

I had one bed of lettuce and transplanted another bed out of it. We used and gave away about fifty heads. I picked about a peck of beans. I had six or eight hills of cucumbers and I raised about four dozen.

The garden exhibit was the 12th of September. I received the second prize on my sunflowers and second prize on my beets and carrots. I have some beets and carrots in a box in the cellar now.

I have enjoyed working in my garden this summer and I hope to have a better one next year.

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Prizes and Gratuities Awarded, 1906.

EXHIBITION OF THE PRODUCTS OF CHILDREN'S GARDENS.

July 7.

For the best general collection from a school garden:

First, Cobbet School, Lynn	$5 00
Second, South Natick Garden Club	4 00
Third, Rice School, Boston	3 00
Fourth, South End Industrial School, Boston	2 00
Fifth, Martin School, Boston	1 00

Special Prizes. 50 cts. each: Hancock School, Boston; Pond Court Garden, Clinton; South Lancaster School Garden; Woman's Club Garden, Watertown; Trinity House Garden, Boston. 25 cts. each: Ira Allen School Garden, Boston; Church Home Garden, South Boston.

For the best general collection from a home garden:

Third, Roger Newton Perry, Worcester	$2 00
Fourth, Gladys Lucas, Reading	1 50
Fifth, Alfred Young, Newton	1 00

Special Prizes. 25 cts. each: George A. Lawson, Jr., Reading; Timothy Riley, Newton.

EXHIBITION OF THE PRODUCTS OF CHILDREN'S GARDENS.

September 15.

For the best general collection from a school garden:

First, Cobbet School, Lynn	$5 00
Second, Trinity House Garden, Boston	4 00
Third, Sewall School, Brookline	3 00
Fourth, South Natick Garden Club	2 00
Fifth, South End Industrial School, Boston	1 00

Special Prizes. $1.00: Tracy School, Lynn. 50 cts. each: Hancock School, Boston; Woman's Club Garden, Watertown; Orphans' Home School Garden, New Bedford; Homecroft School Garden, Watertown; Homecroft Neighborhood Garden, Watertown; Washington Allston School, Brighton.

For the best general collection from a home garden:

First, Rockwood Reed, Shrewsbury	$3 00
Second, Mildred A. Reed, Shrewsbury	2 50
Third, Everett and Harold Record, West Boylston	2 00
Fourth, Francis E. Jones, Worcester	1 50
Fifth, Edith F. Bartlett, Shrewsbury	1 00

Special Prizes. 50 cts.: Gladys M. Bartlett, Shrewsbury. 25 cts. each: Ernest and Louis Herbolzheimer, Reading; Allen W. Hixon, Worcester; George A. Lawson, Jr., Reading; Roger Newton Perry, Worcester; Frank A. Woods, Groton; Charles Boughan, Newton; Leon Briggs, Ayer; Benjamin Davenport, Ayer; Frank E. Griffin, Ayer; Alfred

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Boiseau, Ayer; Julia and Jennie Herbolzheimer, Reading; Ruth M. Lawson, Reading; Gladys M. Lucas, Reading; Esther Fay, Reading.

PRIZES AWARDED FOR SCHOOL GARDENS.

Class A. New or small gardens:

First, South End Industrial School, Roxbury	$8 00
Second, Orphans' Home School, New Bedford	6 00
Third, South Natick School, South Natick	4 00

Honorary Mention: Nonantum Summer School, Watertown; Wellesley School Garden, Wellesley; Homecroft School, Watertown; Woman's Club School, Watertown; Forge Village School, Westford.

Class B. Old or large gardens:

First, Cobbet School, Lynn	$10 00
Second, Fairhaven School, Fairhaven	8 00
Third, Mill School Garden, Groton	6 00

Improvement of School Grounds:

First, Tracy School, Lynn	$5 00
Second, Jackson Street School, Lynn	4 00

PRIZES AWARDED FOR HOME GARDENS.

Children's Home Gardens. Boys:

First, Roger Newton Perry, Worcester	$5 00
Second, Alfred Boiseau, Ayer	4 00
Third, Frank E. Griffin, Ayer	3 00
Fourth, Harold E. White, Reading	2 00

Special Prizes. $1.00 each: Benjamin Davenport, Ayer; Harold Danforth, Reading; H. P. Thompson, West Groton; Daniel A. Whitehouse, Reading; Frank A. Woods, Groton; Richard Lawrence, West Groton.

Children's Home Gardens. Girls:

First, Gladys Lucas, Reading	$5 00
Second, Edna C. Brown, Ayer	4 00
Third, Nellie Hodgkins, Reading	3 00
Fourth, Edna Lamprey, Reading	2 00

Special Prizes. $1.00 each: Helen Carlton, Reading; Esther Fay, Reading; Dorothy Thompson, West Groton; Ethel Evans, Reading; Ruby Mansfield, Reading; Mira E. Whitehouse, Reading.

The amount appropriated for the Committee during the year was $150.00 and the amount expended for prizes $147.00, leaving a balance of $3.00.

HENRY SAXTON ADAMS
CHARLES W. JENKS
HARRY S. RAND
W. E. C. RICH
WM. P. RICH

Committee on Children's Gardens.

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GATHERING THE CROPS

A GROUP OF YOUNG GARDENERS

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REPORT OF THE DELEGATE TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1906.

The past year has been one of varied activities for the Board and we trust these may have proved of benefit to the agricultural interests of the state.

The Arbor Day publication, issued by the Secretary of the Board, at the suggestion of the State Federation of Women's Clubs, has aroused great popular interest. The Secretary of the State Board of Education provided for mailing copies to superintendents and teachers of schools and the demand for this pamphlet has been large, and still continues.

On June 27 the Board, under the superintendence of A. H. Kirkland, held a field meeting for the demonstration of the gypsy moth pest, and experiments on spraying the trees, in parts of Melrose and Malden, which were badly infested. There was a large attendance, including many persons from other states.

The annual Summer Field Meeting was held at Whalom Park, near Fitchburg, July 24, and was marked by a very large attendance. More than a thousand persons were present and the demonstrations were of much practical interest. There was also an address by Gov. C. J. Bell of Vermont on the "Charms of Rural Life in New England." Other speakers were Lieutenant-Governor Draper and President Butterfield of the Agricultural College, Amherst.

The annual Winter Meeting was held in Springfield, by invitation of the Board of Trade of that city. The attendance was good and the papers read were excellent and suggestive. That which would interest our Society most was by J. H. Hale, South Glastonbury, Connecticut, on "Fruits for Local Markets." This was perhaps the best address of the series. His faith in the fruit products of Massachusetts is very strong. Would that our farmers realized that the orchard is one of the best paying assets of the farm, if properly cultivated and cared for!

There was also a very interesting lecture by Prof. E. H. Forbush

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of Wareham, Ornithologist of the Board, on "Useful Birds: how to attract and to protect them." His method of feeding to attract birds was suggestive, presented in a very attractive manner, and full of novelty.

Dr. H. T. Fernald, of the Amherst Agricultural College, called attention to the serious injury to fruit and ornamental trees being wrought by the San José scale.

A resolution was adopted requesting the Massachusetts senators and representatives to use their influence in obtaining further national appropriations with which to continue the fight against the Gypsy and Brown-tail moth pests, and the secretary was also requested to send copies of this resolution to the senators and representatives of the other New England States, and to those of New York.

WILLIAM H. SPOONER,
Delegate.

December 31, 1906.

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REPORT OF THE INSPECTOR TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1906.

To the Massachusetts State Board of Agriculture,

Gentlemen: —

The work of the Massachusetts Horticultural Society during the present year has not varied much from that of previous years. It has endeavored through its public exhibitions and by its annual course of lectures and discussions to increase the interest in horticultural and agricultural matters. It has held fifteen exhibitions of plants, flowers, fruits, and vegetables, and the public interest in them has been fully up to the average of past years. It has held also nine meetings for lectures and discussions, which have covered a wide range of horticultural topics, and have been largely attended by a class of people directly interested in the subjects treated. The discussions, especially, which have been led by experts in the several lines treated, have proved very helpful and have afforded opportunity for the acquiring of information that has been highly appreciated by many.

The exhibition of September 5 and 6, which is one of the great flower shows of the year, was especially interesting as showing the tremendous development in recent years of the public interest in the dahlia, and the important place this flower has attained not only in the regard of the amateur cultivator, but as an important business enterprise for the commercial grower; for there are now in the Commonwealth many plantations, some of them acres in extent, devoted wholly to the cultivation for market purposes of this favorite flower.

The exhibition of October 10 and 11 was devoted wholly to fruits and vegetables and proved very successful, so much so that it will be made a permanent feature in the society's schedule in the future.

Much more might be said in detail of the work of the Massachusetts Horticultural Society, if the limits of this report permitted. With its grand record of seventy-seven years devoted to the educa-

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tion of the community in all that pertains to the cultivation of the soil it looks forward with fresh energy to still greater accomplishments in the future.

It is certainly one of the important agencies in the state for the promotion of interest in the rural and suburban life.

Respectfully submitted,

FRANCIS HENRY APPLETON,
Inspector.

Boston, December, 1906.

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REPORT OF THE COMMITTEE ON LECTURES AND PUBLICATIONS FOR THE YEAR 1906.

BY J. WOODWARD MANNING, CHAIRMAN.

Your Committee on Lectures and Publications would report that the usual course of lectures was held from January 13 to March 10, 1906, and that the attendance was considerably above that of the last few years. The lectures as given were as follows:

January 13. The Possibilities from Insect Parasites; with stereopticon illustrations. By Dr. L. O. Howard, Washington.

January 20. Garden Accessories; with stereopticon illustrations. By Loring Underwood, Boston.

January 27. The Best New England Fruits; general discussion. Opened by E. W. Wood, West Newton.

February 3. Vegetable Growing; general discussion. Opened by Hon. Warren W. Rawson, Arlington.

February 10. Abandoned Farms and their Capabilities. By Prof. W. M. Munson, Orono, Me.

February 17. Hardy Flowers; general discussion. Opened by E. O. Orpet, South Lancaster.

February 24. Vegetable Breeding. By Harry F. Hall, Durham, N. H.

March 3. Tender Flowers; general discussion. Opened by Wm. N. Craig, North Easton.

March 10. Small Fruits; general discussion. Opened by Wilfrid Wheeler, Concord.

The lecture by Dr. L. O. Howard proved one of the best in point of appreciation and value that has been given for a number of years. The large hall was filled even to standing room and the lecture was highly enjoyed by the audience. The balance of the lectures drew attentive and satisfactory audiences.

The discussions have proved very popular, but the selection of titles has left so much opportunity for both the speaker and the

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audience to branch into a discussion of a detail of the subject rather than the whole, that the committee has felt disposed to arrange for more definite titles during the coming lecture course, in order that certain portions of the audience may not be disappointed by any variation in the scope of the lecture as advertised.

The serious defects in the acoustic properties of the large lecture hall continue to discourage the attendance of as large an audience as it is believed would be the case were this objection remedied, and it is proposed to use one of the smaller halls in the basement for certain of the lectures, which usually call a smaller audience than others, for the purpose of testing its acoustic adaptability and perhaps further use.

The Transactions for the year 1905, part II and 1906, Part I have been published and distributed and your Secretary has been able to obtain very considerable improvement in the general appearance of the volumes, with improved typography, while there has been a considerable saving in the cost of printing. The committee has been less generous in the printing of separates but it is believed without in any way causing disappointment to those entitled to them, and in this connection it has been possible to economize in printing bills as compared with former years.

J. Woodward Manning
James H. Bowditch
John A. Pettigrew
Edward B. Wilder
E. W. Wood
} *Committee.*

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REPORT OF THE SECRETARY AND LIBRARIAN FOR THE YEAR 1906.

The activities of the Society during the year have extended somewhat beyond the ordinary requirements of the Schedule of Prizes and Exhibitions and the Program of Lectures and Discussions.

In January the annual meeting and exhibition of the American Carnation Society was held in our halls, followed in March by that of the American Rose Society. Both of these occasions were of noteworthy interest and afforded an opportunity of witnessing the great advance made in the development of the two products of floricultural art in which these societies are especially interested.

In April a School Garden Institute was held in connection with the work of our Committee on Children's Gardens. It was planned and carried out under the general direction of F. A. Waugh, Professor of Horticulture and Landscape Gardening at the Massachusetts Agricultural College. The idea of this meeting was to give simple, plain suggestions for the practical horticultural operations involved in school gardening.

For many years previous to 1903 it was the custom of the Society to hold an exhibition in October exclusively devoted to the display of fruits and vegetables. Since that date this has been merged with the Annual September Exhibition until the present year when a return to the former custom was made. The Fruit and Vegetable Exhibition in October of this year proved so successful that it will doubtless be permanently reinstated in future schedules.

Another feature of the year's work which deserves record at this time was the special exhibitions of the products of children's gardens held in June and September under the auspices of the Committee on Children's Gardens. These we believe were the first of the kind ever held in the history of the Society, and the interest manifested in them warrants the retention in our schedule of at least one such exhibition in every year. It is highly encouraging that a new generation of young people is growing up among us whose steps are being led towards horticultural pursuits. In this connec-

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tion mention may be made of the second school garden conference, held in December, which was well attended by those directly interested in the horticultural education of the young.

While noting these special items of the year's work the regular and more familiar, but not less important public exhibitions and meetings should not be passed unnoticed. There have been held thirteen exhibitions of plants, flowers, fruits, and vegetables, and nine meetings for lecture and discussion, in addition to the two business assemblies of the Society required by the By-laws. Full descriptions of these exhibitions will be found in the annual reports of the chairmen of the several committees, and the records of the lectures and discussions have been published in the Transactions.

The publications for the year and the dates of issue are as follows:

January 17. Schedule of Prizes and Exhibitions, 64 pages.

September 15. Transactions, 1905, Part 2, pages 113–293 and plates 1–9.

October 29. Transactions, 1906, Part 1, pages 1–83.

The Library.

Special attention is still being given to the accumulation of sets of the strictly horticultural periodicals of the world, and of the publications of horticultural societies that are not represented in the library. A list of the more important of these is being made up and they will be secured as opportunity offers.

It is a satisfaction to record in this report the accomplishment of two important matters that have been awaiting attention since the removal to the new building.

One of these has been the disposition of the large collection of horticultural trade catalogues, the accumulation of many years; the other, the completion of the work of revision of the library in accordance with the new system adopted.

The trade catalogues, estimated to number ten thousand, have been assorted and arranged in wood pamphlet boxes so that they are now accessible for ready reference and consultation. Two hundred and eighty boxes, $12 \times 9 \times 3\frac{1}{2}$ inches, were used and the system adopted is mostly chronological; but the catalogues of a

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number of the most prominent and well-known seedsmen and nurserymen, especially of those who have made specialties in various lines, are kept together. Early American catalogues from 1823 to 1850 are fortunately well represented, as are also those of several foreign countries. Altogether the collection is one of great value and importance.

In the former arrangement of the library the books were kept on numbered shelves with the number of the shelf placed on the inside cover of the book and also upon the several cards of the catalogue referring to it. This method is now practically obsolete. The constant accumulation of books and the necessity of frequent changes of location as the shelves became filled, and the great amount of extra labor thereby involved in changing the numbers on the books and card references rendered some other method desirable.

The plan now adopted and approved by the Library Committee, and which is becoming very generally used in special libraries of a similar character, is based upon the collection of the books in classes and giving to each class an arbitrary symbol, either a number or a letter. We have selected letters, as a matter of convenience, and have used the initial letter of the class in which the book belongs, as far as possible. For example: — A = Agriculture; B = Botany; P = Pomology. These main classes are further subdivided, as occasion requires, by the use of other letters, for example: — A J = Agricultural Journals; B C = Cryptogamic Botany; P V = Pomology — Viticulture. These are capable of still further subdivision, as B C F = Cryptogamic Botany — Ferns.

The great advantage of this system is that the location of these classes can easily be changed, as must be often done, as spaces become filled, without incurring the necessity of any erasure on catalogue cards or on the books themselves. The symbol adopted for the class to which the books belong will always remain as the indicator of the location of the individual book despite all changes of its position in the library. The volumes are arranged alphabetically by authors in every class and subclass. It has not been found necessary to make any radical changes in the general arrangement of the library by the adoption of this method owing to the excellent classification of former years.

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Much credit is due to the Assistant Librarian, Miss Mary C. Hewett, for the intelligent service rendered in the installation of the new system, and for her steady application to the work in addition to the many other duties of her position.

A complete synopsis of the classification of the library is appended to this report with the remark that it mainly follows the actual, consecutive position of the books on the shelves.

The accessions during the year have been 1045 among which may be enumerated the following:

Some Accessions to the Library, 1906.

Arnott, S., The Book of Bulbs.
" " The Book of Climbing Plants and Wall Shrubs.
Bailey, L. H., Cyclopedia of American Horticulture, 4th Ed.
" " The Nature Study Idea.
" " Plant Breeding, 4th Ed.
Bardswell, Mrs. F. A., The Book of Town and Window Gardening.
Barnard, Charles, Talks about Our Useful Plants.
Bartrum, Rev. E., The Book of Pears and Plums.
Beach, S. A., The Apples of New York.
Beckett, Edwin, The Book of the Strawberry.
Binnenthal, Friedrich Richter v., Die Rosenschädlinge.
Bissell, Charles H., The Fern Flora of Connecticut.
Bourne, Rev. S. E., The Book of the Daffodil.
Britton, N. L., Manual of the Flora of the Northern States and Canada, 2d Ed.
Brotherston, R. P., The Book of the Carnation.
Burdick, Lewis Dayton, Magic and Husbandry.
Century Dictionary, The. 10 volumes.
Clinton, George W., Preliminary List of Plants of Buffalo and its vicinity, 1864.
Clute, W. N., The Fern Allies of North America.
Correvon, H., Nos Arbres. Geneva, 1906.
Dybowski, J., Traité pratique de Cultures Tropicales.
Fish, D. S., The Book of the Winter Garden.
Fitzherbert, S. W., The Book of the Wild Garden.
Fletcher, S. W., How to make a Fruit Garden.
Flora Brasiliensis. The concluding parts of this monumental work begun in 1840.
Fraser, John, The Fifty Best Roses for Amateur Growers.
" " Select Annuals and Biennials.
" " Select Dahlias and their cultivation by Amateurs.

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FULLERTON, EDITH L., How to make a Vegetable Garden.
GORDON, GEORGE, The Book of Shrubs.
HAGGARD, H. RIDER, A Gardener's Year.
HALE, THOMAS, A Compleat Body of Husbandry. London, 1756.
HARRISON, CHARLES, The Book of the Honey Bee.
HARRISON, C. S., A Manual on the Phlox.
HARWOOD, W. S., New Creations in Plant Life.
" " The New Earth.
HENSHAW, JULIA W., Mountain Wild Flowers of America.
HERMER, JUL., Die Pflanzen in den Anlagen und Gärten von Meran-Mais.
HERRINGTON, ARTHUR, The Chrysanthemum.
HOFFMANN, Dr. JULIUS, Alpine Flora.
" " " The Amateur Gardener's Rose Book.
HOOPER, CHARLES E., The Country House.
JONES, JOHN M., The Naturalist in Bermuda. 1859.
KELLER, IDA A., and STEWARDSON BROWN, Handbook of the Flora of Philadelphia and Vicinity.
KITTREDGE, G. L., The Old Farmer and his Almanack.
LATHAM, CHARLES, The Gardens of Italy.
LLOYD, C. G., Mycological Notes, Nos. 21, 22, 23.
MCFARLAND, J. HORACE, Getting Acquainted with the Trees.
MARTIN, GEORGE H., School Gardens in the Public Schools of Massachusetts.
MICHAEL, EDMUND. Führer für Pilzfreunde. Dritter Band.
MOORE, ALBERT HANFORD, A List of Plants collected in Bermuda in 1905.
NEWMAN, EDWARD, A History of British Ferns. 1854.
NORTHCOTE, Lady Rosalind, The Book of Herbs.
OGAWA, K., Lilies of Japan.
PORTEFEUILLE DES Horticulteurs, Tomes 1, 2. Paris, 1847-8.
POSTELSIA, The Year Book of the Minn. Seaside Station. 1906.
POWELL, E. P., The Country Home.
PUNNETT, R. C., Mendelism.
ROBERTS, HARRY, The Book of Old-fashioned Flowers.
ROBINSON, B. L., The Generic Concept in the Classification of the Flowering Plants.
ROSERAIE DE L'HAY (Seine), Les Roses cultivées a l'Hay en 1902.
SANDER & SONS, Orchid Hybrids.
SEWELL, CORNELIUS V. V., Common Sense Gardens.
SHELTON, LOUISE, The Seasons in a Flower Garden.
SLOSSON, MARGARET, How Ferns Grow.
SWEET, ROBERT, Hortus Suburb. Londinensis. 1818.
TALLACK, J. C., The Book of the Greenhouse.
THOMAS, H. H., The Book of the Apple.
THOMAS, JOHN J., The American Fruit Culturist, 21st Ed.
TRIGGS, F. INIGO, The Art of Garden Design in Italy.
UNDERWOOD, LORING, The Garden and its Accessories.

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VIENNA, International Botanical Congress of 1905, Rules of Botanical Nomenclature adopted.
VILLARD, Th., Les Fleurs a travers les ages et a la fin du XIX^e^ siècle. Paris, 1900.
VILMORIN, PHILIPPE L. de, Hortus Vilmorinianus.
WALLACE, ALFRED RUSSEL, My Life.
WARD, H. W., The Book of the Grape.
WEIDEMANN, J., Beautifying Country Homes.
WHITE, W. H., The Book of Orchids.
WOOLSON, G. A., Ferns and How to Grow Them.
WORTLEY, E. JOCELYN, Fruits and other Food Products of Jamaica.
WYTHES, GEORGE, The Book of Vegetables.

SYNOPSIS OF CLASSIFICATION OF THE LIBRARY, 1906.

H — Horticulture, General.
HJ — " Journals.
HS — " Societies and Boards.
HD — " Dictionaries, Cyclopedias, etc.
HI — " Directories.
HC — " School Gardens, Nature Study, etc.
HG — " Greenhouse Construction.
F — Floriculture, General.
FM — " Monographs, miscellaneous.
FMB — " " Bulbous Plants.
FMC " " Carnations.
FMH — " " Chrysanthemums.
FMT — " " Cacti.
FMD — " " Dahlias.
FMR — " " Roses.
FMO — " " Orchids.
R — Rural Life, Emblematic Works, etc.
E — Entomology.
D — Diseases of Plants.
S — Soils.
SF — " Fertilizers.
SI — " Irrigation and Drainage.
P — Pomology, General.
PV — " Viticulture.
C — Economic Plants.
CM — " " Medicinal.
CV — " " Vegetables, miscellaneous.
CVS — " " " Squashes, Cucumbers, and Melons.

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C V P — Economic Plants, Vegetables, Potatoes.
C V O — " " " Onions.
C V A — " " " Asparagus.
C V B — " " " Beets, including Sugar Beets.
C V C — " " " Celery.
C V G — " " " Cabbages and Cauliflowers.
C V M — " " " Mushrooms.
C V T — " " " Tomatoes.
L — Landscape Gardening.
L P — " " Parks.
L C — " " Cemeteries.
L R — " " Roads.
T — Trees and Shrubs, including Forestry.
A — Agriculture, General.
A J — " Journals.
A S — " Societies and Boards.
A C — " Chemistry.
A L — " Livestock, miscellaneous.
A L B — " " Bees.
A L P — " " Poultry.
A L C — " " Cattle and Dairy.
A L H — " " Horses.
A F — " Farm Buildings, Fences, Implements.
B — Botany, General.
B J — " Journals.
B S — " Societies.
B D — " Dictionaries, Cyclopedias, etc.
B R — " Directories.
B L — " Pre-Linnean.
B M — " Monographs, Miscellaneous.
B M O — " " Orchids.
B M G — " " Grasses and Sedges.
B P — " Paleobotany.
B C — " Cryptogamic, General.
B C F — " " " Ferns and Fern Allies.
B C L — " " " Lichens.
B C M — " " " Mosses and Liverworts.
B C A — " " " Algae.
B C U — " " " Fungi.
B T — " Territorial.
B T E — " " Europe, General.
B T B — " " Great Britain.
B T F — " " France.
B T P — " " Spain and Portugal.
B T G — " " Germany and Austria.
B T D — " " Denmark, Norway, Sweden.

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B T I — Botany, Territorial, Italy.
B T Q — " " Other Countries of Europe.
B T K — " " Plants of the Alps.
B T H — " " Plants of the Holy Land, inc. Bible Plants.
B T A — " " Asia.
B T R — " " Africa.
B T O — " " Oceanica.
B T N — " " North America, general.
B T J — " " All of North America North of the U. S.
B T L — " " New England.
B T M — " " Middle States.
B T S — " " Southern States.
B T W — " " Western States.
B T C — " " Central America inc. Mexico, West Indies, etc.
B T U — " " South America.
B I — " Institutions.
N — Natural History, General.
N J — " " Journals.
N S — " " Societies.
N G — " " Geology.
N C — " " Climatology.
N O — " " Ornithology.
V — Voyages and Travels.
I — Biography.
Z — Miscellaneous, including Design, Color, etc.

WILLIAM P. RICH,
Secretary and Librarian.

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REPORT OF THE TREASURER FOR THE YEAR 1906.

MASSACHUSETTS HORTICULTURAL SOCIETY *in account current with* CHARLES E. RICHARDSON, *December 31st, 1906.*

DR.

To amount paid charged to Real Estate . . .			$682 60
" " " for Exhibition Ware . . .			81 37
" " " " Library, appropriated by Society	400 00		
" " " from J. S. Farlow Fund . .	106 53		
" " " " J. D. W. French " . .	230 08		736 61
" " " " Interest on funds for prizes and other funds credited opposite			2,114 72
" " " for Heating	1,473 03		
" " " " Lighting	2,002 71		
" " " " Water Rates	43 40		
" " " " Labor	2,416 63		
" " " " Stationery, Printing, and Postage	1,754 12		
" " " " Insurance	2,908 72		
" " " " Incidentals	696 37		
" " " " Repairs	1,080 09		
" " " " Committee on Lectures and Publications	170 00		
" " " " Salaries Treasurer, Secretary, and Assistants . .	3,700 00		
" " " " Salaries of Committee on Plants and Flowers . .	304 00		
" " " " Salaries of Committee on Fruit	161 00		
" " " " Salaries of Committee on Vegetables	178 00		
" " " " Salaries of Committee on Prizes	250 00		
" " " " Tax on Real Estate in South Boston	149 46		
" " " " Electric Power	14 18		
" " " " Medals	347 16		17,648 87

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To amount paid for Prizes awarded in 1905 viz.		
For Plants and Flowers	$3,507 35	
" Fruit	987 75	
" Vegetables	867 44	
" Gardens and Greenhouses	143 67	
" School Gardens and Native Plants . . .	149 57	
" Special Prize, Mrs. Anna C. Ames . . .	50 00	
" " " Boston Coöperative Flower Market, Music Hall Place .	38 00	
" " " Gardeners', and Florists' Club .	40 00	5,783 78
" Prizes on Henry A. Gane Fund	35 00	
To Paid on Miss Caroline L. W. French % . .	32 70	67.70
		27,115 65
Cash balance December 31st, 1906 . . .	9733 22	36,848 87

Cr.

Balance of account rendered December 30, 1905 . . .			$12,992 90
Received from Building, use of Halls		4,965 75	
" " Annual Exhibitions	$2,019 50		
Less Expenses,	1,052 93	966 57	
" " Admissions and Assessments . .		796 00	
" " Mt. Auburn Cemetery		3,378 39	
" " State Bounty		600 00	
" " Sale of Transactions		2 00	
" " " " copies of History . . .		5 00	
" " Interest on Bonds	9,625 00		
" " " " Stocks	1,200 00		
" " " " Bank Balance	172 54	10,997 54	
" " Gardeners' and Florists' Club, Special Prize		30 00	
Interest credited Funds charged opposite			
Samuel Appleton Fund	$50 00		
John A. Lowell "	50 00		
Theodore Lyman "	550 00		
Josiah Bradlee "	50 00		
Amount carried forward	700 00		

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Amount brought forward	$700 00		
Benjamin V. French "	25 00		
H. H. Hunnewell "	200 00		
W. J. Walker "	117 72		
Levi Whitcomb "	25 00		
Benjamin B. Davis "	25 00		
Marshall P. Wilder Fund	50 00		
John Lewis Russell "	50 00		
Francis Brown Hayes "	500 00		
Henry A. Gane "	50 00		
John S. Farlow "	100 00		
J. D. Williams French "	200 00		
Benjamin H. Pierce "	32 00		
John C. Chaffin "	40 00		
		2,114 72	
			23,855 97
			$36,848 87

CHARLES E. RICHARDSON,
Treasurer.

Approved:

WALTER HUNNEWELL, STEPHEN M. WELD } *Finance Committee.*

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Assets.

Real Estate	$518,564 63	
Furniture and Exhibition Ware	9,618 88	
Library	43,969 59	
Stereotype Plates and Copies of History	238 50	
2,000, Kansas City, Clinton & Springfield R. R. Bonds	1,980 00	
10,000, Lake Shore & Michigan Southern R. R. Bonds	10,415 25	
21,000, City of Newton, Bonds	24,228 75	
50,000, Atchison, Topeka & Santa Fe R. R. Bonds	44,693 25	
50,000, Chicago, Burlington & Quincy Nebraska Extension Bonds	50,012 50	
10,000, Chicago & West Michigan Bonds	9,987 50	
25,000 Kansas City, Fort Scott & Memphis Bonds	27,523 75	
50,000 Chicago, Burlington & Quincy, Ill. Division Bonds	51,625 00	
8,000, Boston & Maine Bonds	8,710 00	
5,000, West End Street Railway Bonds	5,162 50	
150 General Electric Co., Stock	9,680 70	
W. A. Hayes & A. P. Loring, Trustees	3,488 76	
Cash	9,733 22	$829,632 78

Liabilities.

Prizes and other Funds invested in Bonds and Stocks

Samuel Appleton	Fund	$1,000 00
John A. Lowell	"	1,000 00
Theodore Lyman	"	11,000 00
Josiah Bradlee	"	1,000 00
Benjamin V. French	"	500 00
H. H. Hunnewell	"	4,000 00
W. J. Walker	"	2,354 43
Levi Whitcomb	"	500 00
Benjamin B. Davis	"	500 00
Marshall P. Wilder	"	1,000 00
John Lewis Russell	"	1,000 00
Francis Brown Hayes	"	10,000 00
Henry A. Gane	"	1,065 00
John S. Farlow	"	2,500 35
J. D. Williams French	"	5,058 89
Amount carried forward		$42,478 67

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Amount brought forward	$42,478 67		
Benjamin H. Pierce "	800 00		
John C. Chaffin "	1,066 89		
Balance of Miss Caroline L. W. French %	17 30		
		$44,362 86	
Prizes awarded in 1906 payable in 1907		6,700 00	
Mrs. Anna C. Ames, for special Prize		15 00	
Boston Coöperative Flower Market Special Prize		2 00	
			51,079 86
Surplus			778,552 92
			$829,632 78

CHARLES E. RICHARDSON,
Treasurer.

MEMBERSHIP OF MASSACHUSETTS HORTICULTURAL SOCIETY.

DECEMBER 31, 1906.

Life Membership per last report	700		
Added in 1906	13		
Commuted from Annual	2		
		715	
Deceased		26	
			689
Annual Members per last report	173		
Added in 1906	6		
		179	
Resigned	6		
Commuted to Life	2		
Deceased	4		
Dropped for nonpayment of assessment for two years	4		
		16	
			163
Present Membership			852

INCOME FROM MEMBERSHIP.

13 New Life Members @ $30	$390 00
2 Commuted to Life @ $20	40 00
6 New Annuals @ $10	60 00
Assessments	306 00
	$796 00

CHARLES E. RICHARDSON,
Treasurer.

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THE ANNUAL MEETING, NOVEMBER 17, 1906.

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ANNUAL MEETING FOR THE YEAR 1906.

The Annual Meeting of the Massachusetts Horticultural Society for the year 1906 was held at Horticultural Hall, Boston, Saturday, November 17. President Estabrook presided and there were fifty members present at the opening of the meeting.

The President called the meeting to order at a quarter before twelve o'clock A. M. and stated that it had been called in accordance with the By-laws for the election of officers for the ensuing year and for the transaction of such business as might properly come before it; and that a printed notice of the meeting had been mailed to the address of every member of the Society as it appeared upon the records of the Secretary.

He appointed Edward B. Wilder, J. Allen Crosby, and William P. Rich a committee to receive, assort, and count the ballots, and to report the number, and declared the polls open at twelve o'clock, to continue open until four o'clock.

The record of the Annual Meeting of November 18, 1905, was then read by the Secretary and approved by vote of the meeting.

The President reported that the Board of Trustees had appropriated $5500.00 for prizes and gratuities for the year 1907; a reduction of $1200.00 from the amount appropriated for the present year.

The following named persons, proposed by Prof. C. S. Sargent, and recommended by the Board of Trustees, were duly elected to corresponding membership in the Society:

Dr. Henry L. Ridley, Director Botanic Garden, Singapore.
Lieut. Col. David Prain, Director Royal Gardens, Kew, England.
Senor Don Salvador Izquierdo, Santiago, Chile.
Miss E. Willmott, Essex, England.

Hon. Aaron Low presented a memorial in honor of the late Benjamin P. Ware who was for forty-one years an active and interested member of this Society. At the conclusion of Mr. Low's

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address, Benjamin C. Clark added a tribute to the memory of Mr. Ware and it was voted that the memorial be accepted and printed in the Transactions of the Society, and that a copy be sent to the family of the deceased.

William H. Spooner called attention to the courses in dairy farming and horticulture offered by the Agricultural College at Amherst.

Charles P. Bowditch referred to two circulars which had been mailed to the members concerning the two nominees for the presidency of the Society, and asked for an explanation of some rather contradictory statements made in these documents. Remarks in explanation of these statements were made by Messrs. Estabrook, Rawson, Spooner, Craig, and James H. Bowditch.

At twenty minutes past twelve the President called Mr. Spooner to the chair and declared a recess until four o'clock.

At four o'clock the President, *pro tem.*, announced the polls closed and the ballot committee proceeded to count the votes, reporting the number as follows: For President, Warren W. Rawson 66; Stephen M. Weld 136. For Vice-President, Charles S. Sargent 166. For Trustees (for three years), William N. Craig 174; Arthur F. Estabrook 184; John K. M. L. Farquhar 166; Arthur D. Hill, 174. For Nominating Committee, Arthur F. Estabrook 173; Warren H. Heustis 177; William Nicholson 180; Loring Underwood 174; Edward B. Wilder 176. Ballots cast 204.

The President, *pro tem.*, declared the list as follows to be the duly elected officers of the Society for the year 1907:

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President,	STEPHEN M. WELD.
Vice-President (for two years),	CHARLES S. SARGENT.
Trustees (for three years),	WILLIAM N. CRAIG.
	ARTHUR F. ESTABROOK.
	JOHN K. M. L. FARQUHAR.
	ARTHUR D. HILL.
Nominating Committee,	ARTHUR F. ESTABROOK.
	WARREN H. HEUSTIS.
	WILLIAM NICHOLSON.
	LORING UNDERWOOD.
	EDWARD B. WILDER.

The meeting was then dissolved.

WILLIAM P. RICH,
Secretary.

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NECROLOGY, 1906.

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NECROLOGY, 1906.

SAMUEL B. PARSONS, the distinguished horticulturist, died at his home in Flushing, New York, January 4, 1906, at the age of eighty-seven. He was elected an honorary member of the Massachusetts Horticultural Society in 1856.

Mr. Parsons was born in Flushing, 1819, and the greater part of his life was spent there. After a few years of experience in the hardware business in New York City he returned to his ancestral estate, and in 1840 established a nursery business, devoting especial attention to the introduction and propagation of ornamental trees and shrubs.

In addition to his successful efforts as a nurseryman he also achieved distinction as a writer on horticultural subjects. He published numerous essays and addresses on horticulture and landscape gardening, and his volume on "The Rose: its History, Poetry, Culture, and Classification" is one of the classics of floricultural literature.

CEPHAS H. BRACKETT, formerly of Brighton, Massachusetts, and a member of the Society since 1875, died in Riverside, California, January 21, 1906.

Mr. Brackett was interested in the work of the Society for many years, and was a member of the Committee on Vegetables from 1883 until 1901, a period of nineteen years.

CALVIN D. KINGMAN, who died at Middleboro, Massachusetts, February 1, 1906, had been a member of the Society since 1871.

Mr. Kingman was born at North Middleboro in 1826. He was for a number of years actively interested in the work of the Society and a frequent exhibitor of fruits and vegetables at its exhibitions. He was especially interested in grape culture and received numerous prizes for displays of this fruit.

MRS. ANNA D. WOOD, a member of the Society since 1870, died at her home in West Newton, Massachusetts, February 5, 1906.

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Few names are more frequently inscribed upon the records of the Society than Mrs. Wood's. She was for many years a constant exhibitor of plants and flowers at the exhibitions, and her enthusiastic interest and floricultural skill and knowledge made her presence always a delight to her friends and a benefit to visitors.

BENJAMIN POND WARE was born in Salem, Massachusetts, April 9, 1822, and died in Marblehead, February 7, 1906, at the age of eighty-four years.

Mr. Ware became a life member of the Massachusetts Horticultural Society in 1865 and for the rest of his life was prominent in its councils and a familiar and welcome attendant at its various meetings. He served as vice-president from 1896 to 1903.

As a speaker he was very attractive by reason of his agreeable and pleasant personality and the distinctness of every word he uttered; and he always commanded the attention and interest of his audience in everything he had to say.

In January, 1901, he delivered a lecture before the Society on "A Visit to Kew Gardens and Hampton Court," and in January, 1903, one on "Some Observations and Experiences in Berlin, by a Massachusetts Farmer." From Mr. Ware's habit of careful and close observation of all subjects pertaining to agriculture he was enabled to acquire a large fund of information that made these lectures of noteworthy interest.

On many other occasions, especially at the meetings of the Society for general discussion, he was always ready to contribute from his large store of practical experience, and it is a satisfaction that so much of it has been recorded on the pages of the Transactions in past years.

During his long and active life he was connected with many societies devoted to agricultural and horticultural interests. For sixteen years, from 1875 to 1891, he was president of the Essex County Agricultural Society; for ten years was a trustee of the Massachusetts Agricultural College; for nine years a trustee of the New England Agricultural Society; for four years president of the Marblehead and Swampscott Farmers' Club; and master of the State Grange of Massachusetts for two years.

He was an earnest advocate of the establishment of a State

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Agricultural Experiment Station, and, while president of the Essex County Society, instituted a series of farmers' meetings held in different parts of the county, at which the farmers met in large numbers to discuss the practical questions pertaining to their occupation. These meetings were a very important factor in the dissemination of information among those directly interested, and, during his presidency, the influence of the Essex County Society was greatly broadened and extended.

Mr. Ware was ever ready to accept all scientific methods and mechanical improvements that tended to the better performance of the labor of the farm. Thoroughly interested in every department of agriculture, which he placed in the front rank of all our national industries, he earnestly advocated its advancement. Himself a practical agriculturist, he was proud to be known as a Massachusetts farmer.

We shall greatly miss his genial greetings and cheerful presence at our meetings.

By Aaron Low.

William S. Janvrin, a member of the Society since 1873, died at his home in Revere, Massachusetts, February 14, 1906, at the age of seventy-eight.

Mr. Janvrin was born in Newburyport, and in his early youth came to Revere, engaging after a few years in the business of market gardening, in which he was very successful. For many years he was a contributor of fruits and vegetables from his orchards and farm to the exhibitions of the Society and received many prizes for the excellence of his productions.

Samuel Hartwell, a member of the Massachusetts Horticultural Society since 1865, died at his home in Lincoln, Massachusetts, where he had passed his whole life, February 21, 1906, at the age of seventy-two.

He was an active member of the Society, an ardent fruit culturist, and one who loved the work among his trees and vines. He was especially successful in the cultivation of apples and grapes, and made an enviable reputation for himself with the Gravenstein apple after which he called his farm.

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For fourteen years he served on the Committee on Fruits and ten years on the Committee on Vegetables. He was a constant contributor to the Society's exhibitions and took many prizes for both fruit and vegetables.

Mr. Hartwell was always ready to show visitors over his fruit farm and to tell them all he knew about the growing of apples, grapes, etc., and the visitor felt that Mr. Hartwell grew his apples and grapes because he loved them. One never heard from him the commercial side of the story, but was impressed by his quiet, unassuming way of speaking of the fruits he loved so well.

In 1888 he was awarded the Society's prize for the best vineyard of one acre in the state, and also in 1881 a gratuity for a well cultivated apple orchard.

By Mr. Hartwell's death the Society has lost one of its oldest members and one who was concerned in its best interests.

By Wilfrid Wheeler.

Richard D. Blinn of Lexington, Massachusetts, died in Chicago, February 27, 1906. He had been a member of the Society since 1868.

Clarence H. Clark, a prominent and public-spirited citizen of Philadelphia, died in that city March 13, 1906, at the age of seventy-three. He was elected an honorary member of the Society in 1900.

Mr. Clark was president of the Pennsylvania Horticultural Society from 1895 to 1898, and it was during his term of office that its present horticultural hall was built. He was always much interested in horticulture and was one of the first in the vicinity of Philadelphia to get together a collection of rhododendrons for which his estate has been since noted. From his greenhouses in the early eighties came also some of the first exhibits of large pot-grown chrysanthemums.

George Dorr of Dorchester, Massachusetts, died April 7, 1906. He had been a member of the Society since 1864.

Charles H. Smith, formerly of Jamaica Plain, Massachusetts,

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and a member of the Society since 1865, died at his home in Newton Highlands, April 8, 1906, at the age of eighty-four.

Mr. Smith, though actively engaged in business affairs in Boston, was much interested in horticultural pursuits.

PROFESSOR NATHANIEL SOUTHGATE SHALER died at his home in Cambridge, Massachusetts, April 10, 1906, in the sixty-fifth year of his age. He became a member of the Society in 1898 and served as a member of the Committee on Forestry and Roadside Improvement for the five years following.

Prof. Shaler was born in Newport, Kentucky, February 20, 1841. During the Civil War he served two years as captain in a Union Kentucky Battery, and in 1864 was appointed an instructor in paleontology and geology at Harvard University, becoming a professor in these sciences in 1868.

He was a man of great intellectual activity, an author of note, and a teacher capable of inspiring interest and enthusiasm among his students.

BARON C. R. VON OSTEN SACKEN, an honorary member of the Society since 1879, died at Heidelberg, Germany, May 20, 1906, in the seventy-eighth year of his age.

He was an eminent entomologist, and was elected an honorary member of the Society during his term of office as secretary of the Russian Legation at Washington. He was born at St. Petersburg, Russia, August 21, 1828.

EDWARD KNOWLES BUTLER died at his residence in Jamaica Plain, Massachusetts, June 9, 1906, in his seventy-sixth year.

Mr. Butler was born in Falmouth, July 8, 1830, and came to Boston at an early age to engage in business. He was much interested in horticultural matters and became a member of the Society in 1883.

FREDERICK A. BLAKE of Rochdale, Massachusetts, died at his home in that town July 1, 1906, at the age of sixty-five years.

Mr. Blake, although a business man, was an enthusiastic and successful horticulturist. While his horticultural interests were

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chiefly with the Worcester County Society he was a frequent exhibitor of the products of his skill at the exhibitions of the Massachusetts Horticultural Society of which he had been a member since 1895.

WILLIAM FROST HALL died at his home in Brookline, Massachusetts, July 5, 1906. He was elected a member of the Society in 1867.

THOMAS D. BLAKE of Brookline, Massachusetts, who died at his summer home in Marblehead, July 17, 1906, was elected a member of the Society in 1905.

Mr. Blake was born in Cambridge, October 25, 1847. He was a well-known business man of Boston and for thirty years had been connected with the George F. Blake Mfg. Co., established by his father.

MRS. CHARLOTTE N. S. HORNER died at her home in Georgetown, Massachusetts, July 18, 1906. She was born in West Boxford, July 5, 1823, and became a member of the Society in 1870.

Mrs. Horner was prominent in the exhibitions of the Society in the years between 1870 and 1880 through her exhibits of the native flora of the state in which she was much interested. In 1878 she was appointed on the Window Gardening Committee which was the first attempt on the part of the Society to interest the children in growing plants and flowers. From that date until the present time this work has continued in various forms with marked success.

GEORGE BARNARD BROWN, a member of the Society since 1867, died at his home in Brookline, Massachusetts, September 13, 1906.

CHARLES PELHAM CURTIS of Boston died at his summer residence in Swampscott, September 19, 1906, at the age of eighty-two years. He was elected to membership in the Society in 1899.

Mr. Curtis was born in Boston, July 29, 1824, was graduated from Harvard College in 1845, and attained distinction as a lawyer.

D. REDMOND, a corresponding member of the Society since 1875, died in Jacksonville, Florida, September 25, 1906.

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WILLIAM TRACY EUSTIS was born in Prince Street, North End, Boston, September 29, 1822, and died in Brookline, October 11, 1906, at the age of eighty-four years.

He joined the Society in 1899 and was always interested in its success. He was a great lover of flowers and possessed a rare knowledge of all that goes to make nature beautiful.

Mr. Eustis was a delightful companion on walks and drives and was constantly imparting his knowledge of the secrets of the plants and flowers to those fortunate to be with him.

BY E. M. E.

REV. R. F. ALGER, formerly of Dedham, Massachusetts, died in Dorchester, October 24, 1906, at the age of seventy-three. He had been a member of the Society since 1869.

OLIVER S. SANFORD of Roxbury, Massachusetts, died October 31, 1906, in the eighty-eighth year of his age. He became a member of the Society in 1853.

BENJAMIN TOLMAN, a member of the Society since 1873, died at his home in Concord, Massachusetts, November 3, 1906, at the age of eighty-four.

Mr. Tolman was born in Concord, October 5, 1822, and lived there during his entire life, although his business was in Boston. He was a well-known printer and a senior partner of the firm of Tolman & White.

CHARLES MERRIAM, a well-known business man of Boston, died November 5, 1906, in his seventy-fifth year. He became a member of the Society in 1899.

BENJAMIN B. WILLIAMS, an old-time Boston merchant, and a member of the Society since 1865, died at his home in Boston, November 13, 1906, at the age of seventy-six.

GEORGE ELLWANGER, a corresponding member of the Society since 1875, died at his home in Rochester, New York, November 26, 1906, at the advanced age of ninety years.

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Mr. Ellwanger was born in Germany, December 2, 1816, and came to this country in 1835. In 1839 he established the nursery and seed business of Ellwanger & Barry which became widely and favorably known throughout the horticultural world.

LEANDER BEAL, for fifty years a prominent business man of Boston, in the wholesale clothing trade, died November 30, 1906, at the age of seventy-two.

He was born in Cohasset, Massachusetts, November 27, 1834, and had been connected with the Society since 1887.

CHARLES B. DANA of Wellesley, Massachusetts, died December 3, 1906, at the age of ninety-one years. He was admitted a member of the Society in 1847.

SAMUEL I. COY, a member of the Society since 1868, died at his residence in Boston, December 26, 1906.

DANIEL DUFFLEY died at his home in Brookline, Massachusetts, December 27, 1906, at the age of eighty-six years. He had been connected with the Society since 1877. He was a gardener and in years past an exhibitor at the Society's exhibitions.

ELIJAH W. WOOD, for many years prominent in the agricultural and horticultural affairs of the state, died at his home in West Newton, Massachusetts, December 31, 1906, at the age of eighty years.

Mr. Wood was born in Upton, Massachusetts, June 7, 1826. He came to Boston when a young man and engaged in mercantile business for about twenty years, retiring in 1876 to devote the remainder of his life to horticultural pursuits in which he had always maintained a lively interest.

He was admitted a member of the Society in 1868 and the record of his official service began as a member of the Library Committee in 1875 and 1876. In the latter year he was appointed on the Committee on Fruits and to this work he devoted himself for twenty-nine consecutive years, the last twenty-four years as the chairman of the committee.

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In addition to these duties he served also for twenty-five years as a member of the Committee of Arrangements; twenty-two years on the Garden Committee; twenty-two years on the Committee on Establishing Prizes; eight years on the Committee on Lectures and Publications; and nine years as the Society's Delegate to the State Board of Agriculture.

Mr. Wood was an interesting and instructive speaker and was often called upon at the meetings of the Society to take part in the lectures and discussions. The volumes of the Transactions of the Massachusetts Horticultural Society are enriched by the records of his experience, and his many annual reports of the Committee on Fruits are valuable contributions to pomological history.

The list of his more formal lectures delivered before the Society is as follows:

Essay on Dwarf Pear Trees. 1874.
Culture of the Foreign Grape in Cold Graperies. 1876.
The Culture and Varieties of Roses. 1878.
Fruits best adapted for Market Purposes. 1881.
The best Kinds of Fruit for Export. 1883.
Fruits that promise Well. 1886.
Discussion on Fruit. 1905.
The best New England Fruits. 1906.

Other activities also engaged his attention. He was much interested in the State Agricultural College of which he was a trustee for many years, and he was a member of the State Legislature in 1885, 1886, and 1887, besides filling various official positions in his own city.

Mr. Wood was an authority on the subject of fruits and fruit growing and had unbounded confidence in the possibilities of New England orcharding. He advocated the production of apples, especially, as a business, and urged the renovation of our old orchards and the planting of new ones.

By his death the Society has lost another of its devoted members, and his name is added to the long roll of those who have rendered distinguished service in its work.

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OFFICERS, COMMITTEES, AND MEMBERS, 1906.

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Massachusetts Horticultural Society.

OFFICERS AND STANDING COMMITTEES FOR 1906.

President.

ARTHUR F. ESTABROOK, of Boston.

Vice-Presidents.

WALTER HUNNEWELL, of Boston.
ROBERT T. JACKSON, of Cambridge.

Treasurer.

CHARLES E. RICHARDSON, of Brookline.

Secretary.

WILLIAM P. RICH, of Chelsea.*

Trustees.

OAKES AMES, of North Easton.
WILLIAM N. CRAIG, of North Easton.
CHARLES F. CURTIS, of Jamaica Plain.
WILLIAM H. ELLIOTT, of Brighton.
GEORGE F. FABYAN, of Brookline.
JOHN K. M. L. FARQUHAR, of Boston.
ARTHUR H. FEWKES, of Newton Highlands.
ARTHUR D. HILL, of Boston.
JOHN LAWRENCE, of Groton.
J. WOODWARD MANNING, of Reading.
JOHN A. PETTIGREW, of Boston.
CHARLES S. SARGENT, of Brookline.

Nominating Committee.

JAMES H. BOWDITCH, of Brookline.
ROBERT CAMERON, of Cambridge.
T. D. HATFIELD, of Wellesley.
CHARLES W. PARKER, of Boston.
WILLIAM H. SPOONER, of Jamaica Plain.

*Communications to the Secretary, on the business of the Society, should be addressed to him at Horticultural Hall, Boston.

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COMMITTEES FOR 1906.

Finance Committee.

WALTER HUNNEWELL, *Chairman.*
ARTHUR F. ESTABROOK, GEORGE F. FABYAN.

Committee on Prizes and Exhibitions.

J. K. M. L. FARQUHAR, *Chairman.*
WILLIAM N. CRAIG, ARTHUR H. FEWKES, WARREN W. RAWSON
WILLIAM H. SPOONER, WILFRID WHEELER.

Committee on Plants and Flowers.

ARTHUR H. FEWKES, *Chairman.*
ROBERT CAMERON, WILLIAM N. CRAIG, WILLIAM NICHOLSON.
JAMES WHEELER.

Committee on Fruits.

WILFRID WHEELER, *Chairman.*
CHARLES F. CURTIS, J. WILLARD HILL.

Committee on Vegetables.

WARREN W. RAWSON, *Chairman.*
WILLIAM H. DERBY, WARREN H. HEUSTIS.

Committee on Gardens.

OAKES AMES, *Chairman.*
GEORGE BARKER, WILLIAM N. CRAIG, WILLIAM H. ELLIOTT,
ARTHUR F. ESTABROOK, ARTHUR H. FEWKES, CHARLES W. PARKER,
JOHN A. PETTIGREW WILLIAM P. RICH, HENRY P. WALCOTT.

Library Committee.

CHARLES S. SARGENT, *Chairman.*
T. OTIS FULLER, SAMUEL HENSHAW, CHARLES W. JENKS,
JOHN LAWRENCE, HENRY P. WALCOTT.

Committee on Lectures and Publications.

J. WOODWARD MANNING, *Chairman.*
JAMES H. BOWDITCH, JOHN A. PETTIGREW, EDWARD B. WILDER,
E. W. WOOD.

Committee on Children's Gardens.

HENRY SAXTON ADAMS, *Chairman.*
CHARLES W. JENKS, HARRY S. RAND, WM. E. C RICH,
WM. P. RICH.

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MEMBERS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, 1906.

HONORARY MEMBERS.

Members and correspondents of the Society and all other persons who may know of deaths, changes of residence, or other circumstances showing that the following lists are inaccurate in any particular, will confer a favor by promptly communicating to the Secretary the needed corrections.

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Sharp, Miss Helen, Boston.
Shaw, Christopher C., Milford, N. H.
Shaw, Francis, Wayland.
Shaw, Mrs. Robert G., Wellesley.
Sherman, J. P. R., Newton.
Shorey, John L., Lynn.
Shuman, Hon. A., Roxbury.
Shurtleff, Josiah B., Jr., Revere.
Sias, Charles D., Wenham.
Siebrecht, H. A., New Rochelle, N. Y.
Skinner, Francis, Dedham.
Sleeper, Henry Davis, Boston.
Smiley, Daniel, Lake Mohonk, N. Y.
Smith, Archibald, Oxford, England.
Smith, Charles S., Lincoln.
Smith, Edward N., San Francisco, Cal.
Smith, Thomas Page, Waltham.
Snow, Eugene A., Boston.
Sohier, Col. William D., Beverly.
Spaulding, Edward, Weston.
Spooner, William H., Jamaica Plain.
Sprague, Isaac, Wellesley Hills.
Springall, George, Malden.
Stearns, Charles H., Brookline.
Stearns, Frank W., Newton.
Stedman, Henry R., M. D., Roslindale.
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Stewart, William J., Winchester.
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Stone, Charles W., Boston.
Stone, Prof. George E., Amherst.
Stone, George F., Chestnut Hill.
Storrow, James J., Boston.
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Strong, William C., Waban.
Strout, Charles S., Biddeford, Me.
Sturgis, Richard Clipston, Boston.
Swain, Charles E., Roxbury.
Sweet, Everell F., Malden.
Sylvester, Edmund Q., Hanover.

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Temple, Felker L., Boston.
Tenney, C. H., Methuen.
Thatcher, William, Brookline.
Thayer, Mrs. Alice R., Boston.
Thayer, Bayard, South Lancaster.
Thayer, Mrs. Bayard, South Lancaster.
Thayer, Eugene V. R., South Lancaster.
Thayer, Mrs. Eugene V. R., South Lancaster.
Thayer, Henry J., Boston.
Thayer, John E., South Lancaster.
Thayer, Mrs. John E., South Lancaster.
Thayer, Nathaniel, Lancaster.
Thayer, Mrs. Nathaniel, Lancaster.
Thayer, S. V. R., Boston.
Thiemann, Hermann, Belchertown.
Thomas, W. B., Manchester.
Thurlow, Thomas C., West Newbury.
Tilton, Stephen W., Brookline.
Tolman, Miss Harriet S., Boston.
Toppan, Roland W., Malden.
Torrey, Elbridge, Dorchester.
Torrey, Everett, Charlestown.
Tower, Miss Ellen May, Lexington.

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Travis, Charles B., Brighton.
Trepess, Samuel J., Glencove, L. I., N. Y.
Tucker, Lawrence, Boston.

Underwood, Loring, Belmont.

Vander-Woerd, Charles, Waltham.
Vaughan, William Warren, Boston.
Vinal, Miss Mary L., Somerville.
Vining, R. William E., Hingham.

Wakefield, E. H., Cambridge.
Walcott, Henry P., M. D., Cambridge.
Waldo, C. Sidney, Jamaica Plain.
Wales, George O., Braintree.
Walsh, Michael H., Woods Hole.
Waltham, George C., Dorchester.
Walton, Daniel G., Wakefield.
Warburton, Chatterton, Fall River.
Ward, Francis Jackson, Roxbury.
Ward, John, Newton Centre.
Ware, Miss Mary L., Boston.
Warren, Samuel D., Dedham.
Washburn, Andrew, Hyde Park.
Watson, Benjamin M., Jamaica Plain.
Watson, C. Herbert, Brookline.
Watson, Thomas A., East Braintree.
Watts, Isaac, Waverley.
Webster, Edwin S., Chestnut Hill.
Webster, Frank G., Boston.
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Welch, Edward J., Dorchester.
Weld, Christopher Minot, Readville.
Weld, Richard H., Boston.
Weld, Gen. Stephen M., Dedham.
West, Mrs. Maria L., Neponset.
Wheeler, Frank, Concord.
Wheeler, James, Brookline.
Wheeler, Wilfrid, Concord.
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White, George R., Boston.
White, Joseph H., Brookline.
Whitman, William, Brookline.
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Whittier, William Benjamin, South Framingham.
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Wilder, Edward Baker, Dorchester.
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Williams, Philander, Taunton.
Wilson, Col. Henry W., Boston.
Wilson, William Power, Boston.
Winsor, Robert, Weston.
Winter, Herman L., South Medford.
Wood, William K., Chicago, Ill.
Woodberry, Miss E. Gertrude, Cambridge.
Woodbury, John, Lynn.
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Wright, George C., West Acton.
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Anderson, George M., Milton.

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Barr, John, South Natick.
Bayley, S. King, Westwood.
Bigelow, Arthur J., Eastlake, Worcester.
Bigelow, Mrs. Nancy J., Southborough.
Bird, John L., Dorchester.
Blackmur, Paul R., Quincy.
Blomberg, Carl, North Easton.
Bolton, Sabin, North Easton.
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Breed, Edward W., Clinton.
Bullard, John C., Cambridge.

Carpenter, Frank O., Boston.
Chandler, Alfred D., Brookline.
Chase, Joseph S., Malden.
Child, Stephen, Kendal Green.
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Clark, John, Watertown.
Clark, John W., North Hadley.
Clark, Joseph, Manchester.
Clark, Theodore M., Boston.
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Grey, Thomas J., Chelsea.

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Hollingsworth, Miss Rose, Boston.
Hollis, George, South Weymouth.
Houghton, George S., Reading.
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Howden, Thomas, Whitinsville.
Howe, Miss Louise, Brookline.
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Hubbard, F. Tracy, Cambridge.

Illenberger, Henry, Lake Geneva, Wisconsin.

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McLaren, Anthony, Westwood.
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Manning, A. Chandler, Reading.
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Nixon, J. Arthur, Taunton.
Norton, Patrick, Dorchester.

Oakes, F. L., Newton.

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Parker, Walter S., Reading.
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Pierce, Mrs. F. A., Brookline.
Pray, James Sturgis, Cambridge.
Pritchard, John, Madbury, N. H.
Purdie, George A., Ormond, Florida.

Rane, Prof. F. W., Waban.
Rea, Charles H., Norwood.
Rea, Frederic J., Norwood.
Rich, Miss Ruth G., Dorchester.
Rich, William E. C., Roxbury.
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Robb, Peter B., Whitinsville.
Robinson, Walter A., Arlington.
Ross, Charles W., Newtonville.
Ross, Henry Wilson, Newtonville.
Ross, Walter D., Worcester.

Sander, Charles, Brookline.
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Stuart, James, Brookline.
Symmes, Samuel S., Winchester.

Tailby, Joseph, Wellesley.
Teele, William H., West Acton.
Thorpe, Joseph, Taunton.
Tingley, Mrs. Etta Fish, Greenwood.
Tyndale, Theodore H., Weymouth.

Vaughan, J. C., Chicago, Ill.

Ware, Horace E., Milton.
Warren, Samuel H., Weston.
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Welch, Patrick, Dorchester.
Westwood, Thomas H., Jamaica Plain.
Wheeler, Ezra H., Dorchester.
Wheeler, Henry A., Newtonville.
Wheelwright, George William, Jamaica Plain.
White, Miss Margaret, Cambridge.
Wilder, Miss Grace S., Dorchester.
Wilder, Miss Jemima R., Dorchester.
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Wood, Elijah A., West Newton.

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